OMNIX is coming alive

Computer Weekly

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Thursday, February 11, 1982

Artificial intelligence reaches novice users

by Philip Hunter

EXPERT systems for the general user have come a step closer with the launch of a package from major UK software house SPL, which may bring the benefits of research in artificial intelligence nearer to everyday use.

Expert systems consist of two parts: a knowledge database and a program to draw conclusions from it. There are a number already commercially available, but most are tailored to specific applications like geological surveying and medical diagnosis.

Now a general-purpose package has been written with the inexperienced user in mind.

SPL has taken the veil off Sage, the package which has been simmering at its Abingdon offices for over two years. It will be available on a consultancy charge of about £10,000 for mainframe users, and £2,000 for microcomputer users, to allow them to build their own.

Sage is pitched at the commercial market for the development of expert consulatation systems and for providing intelligent links between large computer programs and control systems. But the company concedes that it will at first appeal only to medium-sized and large organisations ready to invest in the unknown.

"We want expert systems to apply generally," says Jon Young, head of SPL's expert systems group. "We also want to develop specifically tailored packages."

Sage will be marketed abroad and there are particular hopes for success in the US, where a different approach has been taken to artificial intelligence. With a huge investment in individual systems based on trial and error, American companies and universities have made little attempt to produce general-purpose packages.

SPL is not the first to sell general expert system generators. Intelligent Terminals of Oxford has had a system called ALX available for nearly two years.

The company has sold licences to about ten UK companies at £10,000 each, as well as several more in the US, including DEC and IBM at Palo Alto. SPL itself was the first to buy a licence for ALX in July 1980.

But Young argues that several features make Sage more appealing to users ignorant of expert systems.

He cites the ability to accept arithmetic at run time, which Professor Michie of ITL admits ALX cannot do.

Michie emphasises that Sage is only the third system of its kind and that it does not offer fundamentally new facilities.

MICHIE . . . "Sage is only the third system of its kind."

YOUNG . . . "We want expert systems to apply generally."

IBM drops laser discs

by Donald Kennett

A QUESTION mark hangs over IBM's commitment to laser disc storage technology, following its decision to stop selling video disc drives through Disco-Vision Associates.

Disco-Vision was set up by IBM along with US entertainment giant MCA Corp.

DVA sold video disc players built by Pioneer Electronic Corp of Japan, but manufactured video disc platters in-house.

The DVA products were aimed at the consumer market but the company could have followed Philips, Thomson-CSF of France and Xerox into laser disc storage for data.

Nixdorf unscathed

by Kevin Cahill

DESPITE the poor business climate in Europe, Nixdorf has pushed sales up 24% in 1981.

Germany's main independent computer and office automation company had turnover of DM1.93 billion (approx £439 million) compared with DM1.56 billion (£355 million) in 1980.

Reporting an order book 16% up on the beginning of 1981, the company said that sales at home and abroad had expanded, with growth in the European market particularly strong.

This is in sharp contrast to the majority of American computer companies in Europe.

Harris UK cuts back 12 of its workforce

by Donald Kennett

LOW demand has forced a contraction of staff at the Slough office of Harris Information Systems.

The company has made 12 of its sales and administration staff redundant out of a workforce of 150.

The division's UK general manager Frank Walters said that orders for products across its whole range were being delayed as companies considered their spending more carefully. The necessary economies had been made after looking at operating overheads and the marketing and sales teams had been merged, allowing the functions to be handled by a smaller team.

He stressed that the engineering and software support teams had not been cut. The staff who left last Friday had been at the company for between six months and five years.

Making the cuts was a local UK decision unrelated to the company's performance in the US, although the first quarter results published last week showed a downturn in the company's semiconductor division.

The slowing down in orders was also attributed to the strength of the dollar.

Itel crash near to settlement

by Howard Karten and Boris Sedacca

ONE of the most spectacular computer leasing crashes of recent times now appears close to a conclusion. Itel Corp, the once powerful vendor of IBM plug-compatible mainframes, said last week that it was well on the way to settling its claims and counterclaims against Lloyd's underwriters which at one stage amounted to $300 million.

The bankrupt San Francisco-based computer leasing company took a serious blow when IBM introduced its range of medium-sized mainframes, the 4300 series, in January 1979, rendering its own stock of IBM mainframes obsolete.

The company now appears to have reached agreement with its unsecured creditors on a re-organisation plan comprising a package of debt securities, shares and cash for its $900 million-odd outstanding debts. Some observers believe that the case might be concluded by the end of the year.

The settlement with Lloyd's is not directly related to last week's announcement, but is "proceeding on a parallel track", an Itel spokeswoman said.

Conditional settlement is expected to be completed by the end of March and has three elements, she said.

● Lloyd's would settle directly with Itel owner-lessors (the banks and financial institutions) and release Itel from its liability. In 1979 liability stood at a staggering $300 million maximum potential obligation, but had dropped to around $100 million by the end of September 1981 as the number of users exercising their early termination option declined and some suits were settled. This figure has declined still further.

● Itel and Lloyd's would mutually release each other of claims against the other.

● Lloyd's will pay Itel $4 million in cash and will release a $2 million escrow account it currently holds, which could only be released by agreement from both parties.

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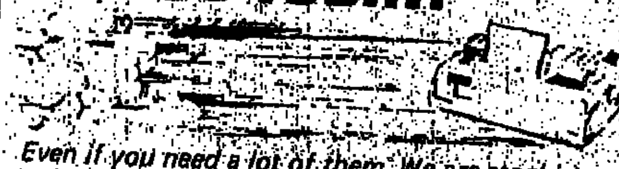
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Councils told to sell software

● From front page

machines. Local government is deeply involved in business — everything from filling holes in kids' teeth to holes in the road. They all involve live computer applications and instead of going UDI we're taking the sensible path of co-ordinating our efforts."

Gordon Cunningham, head of the Lamsac project, sees it as vital that computing becomes deskilled, much in the way that car-driving was popularised so that everyone could benefit.

He predicts microcomputers linked to mainframes, and users talking to users whatever the environment. "As far as I'm concerned they are all machines, offering facilities," he said.

"The standard here is so high that we could eat commerce," said Cunningham. "Once established, this will snowball into something big."

* Proposals for the Generation of Local Government Microcomputer Applications Packages, Lamsac, 3 Buckingham Gate, London SW1E 6JH. £3 to local authorities, £4 to others.

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Thursday, February 18, 1982 Number 796 30p

Altergo into IBM systems selling

by Andrew Thomas

UK systems house Altergo has set itself up in the unusual position of a second source of IBM's mid-range mainframes. The company has bought 15 of the 4300 range with plans to sell them off as complete packages, including applications software and systems programming expertise.

Altergo managing director Richard Jones said that it was part of the company's "black box" concept to supply everything the first time user would need in one package. The company had also launched what it claimed as the first training programme in the UK for IBM's Small Systems Executive (SSX).

4300s of various types are on their way to Altergo at a cost of £2.5 million. Eleven of these are to be used in the firm's European offices, and the remaining 15 are ... users. As ... to represent an annual expenditure ...

Jones said: "We're really after the bits and pieces that IBM aren't bothered about. IBM salesmen are ... motivated to sell machines on a one-off basis."

When the 4300 series was launched in 1979, IBM said it would require no systems programming effort on the part of the users. Experience in the field has demonstrated that this was an optimistic prediction.

As the level of support required by the end user does not usually warrant the sevices of a full-time systems programmer, Altergo has launched a systems engineering service to meet this demand. The service offers a range of options including software consultancy, tuning, maintenance, trouble-shooting, and utility writing.

Users of the service are also offered regular site visits of systems programmers at a minimum frequency of one a month. Trouble-shooting is carried out on Altergo's own 4341, and, if required, a special site visit can be made within one working day of the initial call.

The company is also offering a range of applications software written for the 4300 range. Accounts payable and purchase order packages are available now, and later this year, general ledger and accounts receivable will also be marketed.

Jones commented that the packages were initially designed for Altergo's own use when it was discovered that the packages available for the 4300 were "so pathetic" that it was better to write their own, which are now being made available to other 4300 users.

"These developments mean that we can now offer potential users of the 4300 range a total solution for all basic financial business operations," concluded Jones.

JONES . . . Altergo is after the bits and pieces IBM can't be bothered with.

'Buy UK micros' — govt told

by Robert Parry

MORE British microcomputer manufacturers are pressing to be allowed on to the government's list of its own preferred suppliers, and the signs are that they are succeeding.

The short-list drawn up by the Central Computer and Telecommunications Agency (CCTA) for all purchases of microcomputers by central government departments is to be reviewed.

In the original list set out last March, only three of the nine companies selected — Research Machines, Casu and BMG — built machines in this country. The rest, including big names Commodore and Apple (formerly under its distributor Microsense), imported equipment from the US.

But there is soon to be a second competition for contracts for the standard microcomputer range. The contracts give discounts to the governments and specify delivery and maintenance arrangements.

Hope that more British manufacturers will appear on the list comes from support by Information Technology Minister Kenneth Baker at a seminar last week organised by the British Microcomputer Manufacturing Group, and attended by civil servants buying micros for the public sector.

Baker said that although there were no whales among British micro manufacturers, there were lively minnows, and he encouraged people in the public sector to buy British.

The message was backed up by Gerald Watson, director of the CCTA, who said that UK microcomputers had a major part to play in the next round.

David Broad, BMMG chairman, welcomes such moves. "There are some good schemes — like the micros in schools scheme, the Microtrain and the micro caravans. They are very good for a few vendors, but I feel more can be done for more British manufacturers."

Casu is very happy with the relationship with government departments. Research Machines gained fewer orders than expected but is pleased to be on the list.

BROAD . . . "More can be done."

NEWS BRIEF

DP firms top in UK success table

COMPUTER firms have taken top place in a survey of Britain's privately-owned companies. London based Marcol Computer Services was the No 1 company in terms of profitability.

Top payer in the UK was Croydon-based Computer Management Group (CMG), which paid each employee an average of £12,849 last year.

Nexus cuts

NEXUS, the Cirencester-based Honeywell OEM, has made its managing director Peter Johnson and several of its data processing staff redundant as part of an overall contraction. Chairman Andrew Ingram, who blames the crisis on poor trading results and the failure to achieve certain contracts, says that no new managing director will be appointed.

Olivetti micro

THE long-awaited microcomputer from Olivetti is set to appear at this year's Hanover Fair in April. It will be a 16-bit machine, based on a Zilog processor, and will compete directly with the IBM Personal Computer and the Sirius I, both also Intel-based. It is expected to sell at about $4,000 for a basic system, undercutting the equivalent IBM and Sirius models priced at about $5,000.

Computastars

ENTRIES are already coming in for the 1982 Computastars competition, sponsored by Computer Weekly. The four regional heats are restricted to a maximum of 40 teams, and places will be allocated as first come, first served. Complete the entry form on page 6.

HP puts mainframe close to desk-top

by Kevin Cahill

THE mainframe on an office desk is one step closer following Hewlett-Packard's announcement last week of a 32-bit minicomputer which brings a new level of chip density.

The company revealed details of a six-chip set which also begins Hewlett-Packard's long awaited foray into this minicomputer market.

The announcements came in a paper to the International Solid State Circuits Conference (ISSCC) in San Francisco last week. The conference is the world's leading forum for microelectronic technology and the scene of previous revelations of chip design.

Last year it saw Hewlett-Packard presage the announcement by revealing details of design plans. Now the company's Super Chip Set has turned out to contain six chips, as against rival Intel's three-chip 432 set, but it breaks ground in two areas of technology.

The 128K RAM, the discrete memory unit in the set, is based on a single chip which contains 660,000 semiconductor devices making it a true VLSI (very large scale integrated circuit) device. And the set is based on MOS technology which uses one micron width circuits compared to the two or three micron circuits in most other production devices (a micron is one millionth of a metre).

ISSCC report — UK could gain from embargo — page 2

The whole chip set consists of six separate devices, the CPU, a memory controller, RAM, ROM, input/output processor and clock generator.

According to a spokesman for Hewlett-Packard, the Super Chip Set is now in production and is being supplied to the company's designers for use in a product which will be introduced "in about a year". It will not be available to outside buyers and is intended solely for internal use.

But it gives the company a 32-bit product for the first time, as well as pushing the level of compactness a step further.

No details of the operating system or other software are available, nor are specifications such as the mips (millions of instructions per second) rating of the machine. Hewlett-Packard's R&D manager, Dana Seccombe, would only say that the company had performed benchmarks.

According to commentators at the ISSC, Hewlett-Packard will be attempting to implement its current operating systems on the Super Chip Set because it is commited to forward compatibility on its software.

Meanwhile Intel, now Hewlett-Packard's main rival in the 32-bit area with its model 432, which has been dubbed a micromainframe, has said that its product is being supplied to potential users in prototype form.

The Intel device is based on a set of three chips which come on a single board at a price of about $2,300.

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Japan on top in race for 256K chip

by Kevin Cahill

THE International Solid State Circuits Conference which ended last week in San Francisco was dominated by discussions about the 256K chip, the successor to the current 64K device.

The ISSCC, held annually, is probably the key launching pad for technology announcements which will have a fundamental bearing on the computers to be produced from 1984 onwards. Those machines now look as if they will be based on this very large memory chip.

Two years ago Intel brought the world of the pocket mainframe much closer when it unveiled the three chip, single board 32-bit micromainframe, at ISSCC.

Then a year ago Intel stole the headlines again with its paper on the design for a 256K dynamic RAM.

This year there was no one announcement which grabbed the limelight but attendees came away dazzled by the speed at which the quarter megabyte (256K) chip is appearing, and stunned by the cost of staying in the race to produce the new system storage blocks.

Six companies are now producing or about to produce the chips.

Late last year officials at Japanese electronic manufacturer Oki said that the company was already delivering to its designers 256K RAMs.

Hitachi has published part of its marketing plan showing 256K deliveries in the middle of this year.

Fujitsu and Toshiba have not formally revealed details of their plans, but officials from both companies at ISSCC said that they would shortly be delivering those devices.

Meanwhile, American response has been slow to develop. Intel, the declared market leader in the field is currently selling a 128K EPROM chip and is well advanced on its 256K path, but would not reveal delivery details.

Motorola officials said that their 256K chip would be in delivery this autumn. Bell Laboratories, the subsidiary of AT&T, is currently reckoned to be sampling its own devices at this level.

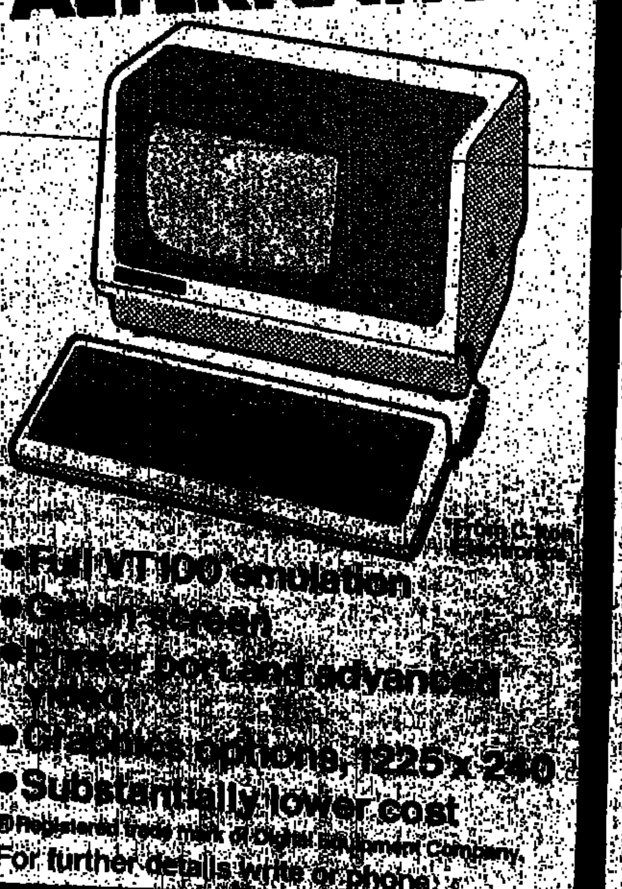
Two engineers from IBM gave a paper describing a 288K dynamic RAM using a 9-bit byte.

They outlined a 288K random access memory, organised as 32Kbytes (9 bits per byte) with one byte being accessed during every read or write cycle. This chip, they said, could be fabricated using current silicon and aluminium metal oxide technology, applying two micron ground rules and one micron overlay tolerances.

Delegates at the conference inferred that this was the direction being taken by IBM in its fundamental technology, but no comment from IBM gave any clue as to whether the company would pursue the 288K chip.

The other key factor, the price of these devices, has so far been impossible to establish. An Intel engineer said he expected the Japanese to be selling a 64K dynamic RAM for \$2 by the end of this year.

On that basis the rumoured \$20 to \$30 price tag on the Toshiba 256K device would seem to be about right, according to industry observers. But many engineers remained sceptical about the declared delivery dates, especially those for this year.



UK could gain from US curbs

by Robert Parry

BRITAIN is well placed to gain from the latest American protectionist moves in the microelectronics market.

The US government, faced by Defence Department concern that Japanese companies' giant share of US sales of 64K RAM chips is a threat to national security, is considering measures to curb imports. If they are implemented, then suppliers like Inmos behind the US tariff wall are in line for the benefits.

Japanese companies have 70 per cent of the US market, considered by semiconductor manufacturers to be vital to the industry, and the Defence Department fears that the domestic industry is threatened and that the military could be left vulnerable. Restrictions would come under a rarely used section of US trade laws that allows the president to restrict imports that jeopardise national security.

Inmos already manufactures 64K chips in its US plant at Colorado Springs, so would be behind any protectionist trade barrier erected by the US government, and by July should be producing them in the Newport, Gwent, factory, inside the EEC tariff barrier.

Inmos is aiming at "second generation" chips, characterised by higher speeds than offered by the currently available Japanese devices. With the higher speeds come higher prices.

Britain's other indigenous semiconductor manufacturers, led by Ferranti and Plessey, concentrate on custom and semi-custom circuits such as gate arrays, which are not dominated by Japanese mass production as memory devices are.

Plessey sees the business as one of peaceful co-existence with Japan, and does not feel under threat from undercutting as long as it has reciprocal agreement with Japanese companies. It already exports about one-fifth of its production to Japan.

The US action being considered is, officials stress, separate from any other trading issues. But Japan is said to be worried that it is another feature of the growing groundswell of international protectionist feeling about trade with Japan.

In Britain the CBI has put forward to the Secretary of State for Trade proposals for a system to detect and where necessary forestall import surges from Japan. The French Trade Ministry, alarmed by rapidly rising Japanese imports, is considering protectionist measures. Both moves would include microelectronics.

BANCROFT . . . *Bringing package approach to the real time software industry.*

Real time demand will be met by pool of re-usable software

by Claire Gooding

USER demands for real time applications have spurred a small British software house to attack this rapidly growing market. Dynamic Software Services, based in Hatfield, Herts, is setting up a pool of re-usable software based on its own products and those of real time specialists in the US.

DSS is a member of the Hawker Siddeley engineering group and has a long pedigree in real time engineering and process control projects.

There are few large companies dedicated to the real time programming business although the opportunities now emerging are immense.

John Bancroft, divisional manager of DSS believes that the industry may have been held up by the extreme rarity of specialist skills — a problem that can be eased by providing adaptable real time tools.

"The same methodologies apply, and a lot of effort can be wasted re-inventing the wheel and starting from scratch with every project.

"It gives us an edge in the market if we can offer some services off the shelf, and we've tried to build up a library of general-purpose packages."

DSS has won distribution and OEM rights to several packages from prestige real time suppliers in the US. It will be selling the Virtual Graphics Machine package from Northern Telecom, the Canadian sister of Bell Northern Research, both as a standalone system and incorporated into larger projects. DSS already makes heavy use of sophisticated graphics in some of its major projects, like the MINOS application, where colour graphics are a vital element in controlling cutting operations at the coal face for National Coal Board pits.

According to Bancroft, DSS is often in the position of putting state-of-the-art technology "into ½inch thick steel boxes" because the physical job the tools have to do may be anywhere from the open sea to miles underground.

This means that support and reliability are also vital, and this is another area where the packaged-approach wins.

Other systems in DSS package strategy come from Flic, a New Jersey specialist in monitoring and control systems. Flic has appointed DSS its distributor in the European Economic Community to deal with its pre-programmed control functions.

One of its systems, Flic 3, is for display and alarm functions in power stations.

Guidelin[es] soon fo[r] open syst[ems] connecti[on]

by Donald Kennett

... would be a millstone around their necks. The need to protect existing investment was dominant.

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EDITORIAL
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Govt favours independent privacy control

by Rory Johnston

A RADICAL change of approach has been taken by the government in its developing proposals to give greater protection to computer data.

Plans for codes of practice for system operators have been thrown out and instead users will probably be required to follow general privacy principles. In addition, special regulations for certain categories of data might be laid down.

Giving the latest thinking last week, Home Office Minister Timothy Raison said he now thought there should be an independent registrar for computer systems which handle personal files, and an appeal tribunal which would include computer professionals should be set up.

The Home Office is thus yielding to pressure from Parliament and from the Department of Industry, where it is thought that the data protection system should not be run solely by a government department. Ministers are still adamant that there should not be a fully fledged independent authority, but a single man acting as a registrar.

This also replaces the idea that the Parliamentary Ombudsman should oversee data protection.

The long-awaited White Paper giving details of the government's proposals is now expected in the next few weeks. Its completion has been delayed by the several changes of mind that have been induced in the government.

Legislation will still not be brought in until the next session of Parliament, Mrs Thatcher told the Commons. At the same time she expressed her "distaste" at disclosures in the daily Press that details on an MP's background had been obtained from government files by private detectives.

The registrar, Raison said, while speaking to a conference at Info 82, would be appointed by the government but would be independent of it. He would oversee registration of data files and would investigate complaints. Nonetheless, it is not thought that he would have a team of inspectors.

In Raison's words, the registrar "would not have complete discretion to interpret the regulations — that would give too much power to one man". Thus there would be an appellate tribunal made up of people "from any walk of life".

Raison added that he thought "computer professionals would have a part to play."

RAISON . . . *"Role for computer professionals."*

£60m a year from DoI for info technology

by our Parliamentary Correspondent

DEPARTMENT of Industry support for information technology is expected in a full year to represent an annual expenditure of over £60 million, Kenneth Baker, Minister for Information, has told MPs.

He explained that it was difficult to say exactly because the schemes available were demand-related and so somewhat unpredictable in out-turn.

Baker pointed out that the DoI's space research programme of £45 million a year and British Telecom's research programme running at £100 million a year would contribute to the development of a UK capability in information technology.

Comparisons with the funding allocations of other industrialised countries' governments to information technology were difficult to make. He declined to attempt it because any such comparisons would inevitably be partial.

● INTERIM results of a survey of 1,200 UK manufacturing establishments employing over 20 people carried out by the Policy Studies Institute last year estimated that 30.3 per cent of companies were using or intending to use microelectronics in products and/or production; 7.8 per cent in products and 26.6 per cent in production, John Wakeham, Under-Secretary of State for Industry, stated in a Commons written answer to Renee Short (Lab, Wolverhampton North East).

Magnuson takeover hopes begin to fade

by Boris Sedacca

HOPES that troubled plug-compatible manufacturer Magnuson might be taken over by some more financially healthy PCM appear to be receding. A deal with Storage Technology has fallen through, and National Advanced Systems has now withdrawn its interest.

"Their only salvation now is refinancing through existing stockholders," said one leading IBM watcher, Tom Crotty at the US-based Gartner Group.

"Nothing has come out of negotiations with any other PCM. Magnuson is currently negotiating with stockholders, including Fairchild which owns about 20% of Magnuson.

CARL AMDAHL . . . *"His hands are full"*

"Fairchild has bailed out Magnuson before with a cash injection. That was in late 1979 after the announcement in January by IBM of its 4300 series," he said.

At that time, manufacturers of IBM plug-compatible mainframes suffered as a result of the cheap 4300 series. Those which concentrated on the market for mid-range machines saw profit margins shrink, including the two major contenders, Magnuson and IPL.

Others, like Amdahl and National Advanced Systems, found it easier to survive at the top-end of the market where margins were more generous and support did not have to be diluted over a large number of sites.

However, according to Crotty, there has been enough venture capital pumped in by Magnuson shareholders, such as Fairchild, to make them reluctant to let the company go bankrupt. "They will not allow it to go Chapter 11," he said.

Commenting on the possibility of Carlton Amdahl, Gene's son, rejoining the company he helped to found, Crotty said: "I doubt if he will come back full-time. His hands are full with Trilogy, the company he wants to set up with his father Gene Amdahl, but he could take up a consulting role in order to protect his own holding in Magnuson."

● Trilogy spends \$160 million on new machine.

ME29 users will get GL/Plus financial management system

by Claire Gooding

USERS of the ICL ME29 are to get their own version of GL/Plus, a financial management system which is already well established on IBM kit.

The ME29 package forms part of a wider commitment to the ICL market by RTZ Computer Services, which sells GL/Plus in the UK. RTZ has invested about £200,000 in buying its own ICL 2946 mainframe, which will be used purely to develop and support products for the ICL marketplace, and is now hunting for other ICL software products.

As well as developing its own ICL products on the machine, RTZ Computer Services plans to create ICL versions (under DME and the VME operating environments) of GL/Plus and other products from its US author, McCormack & Dodge. An ICL version of the AP/Plus accounts payable system from M&D is already on the cards.

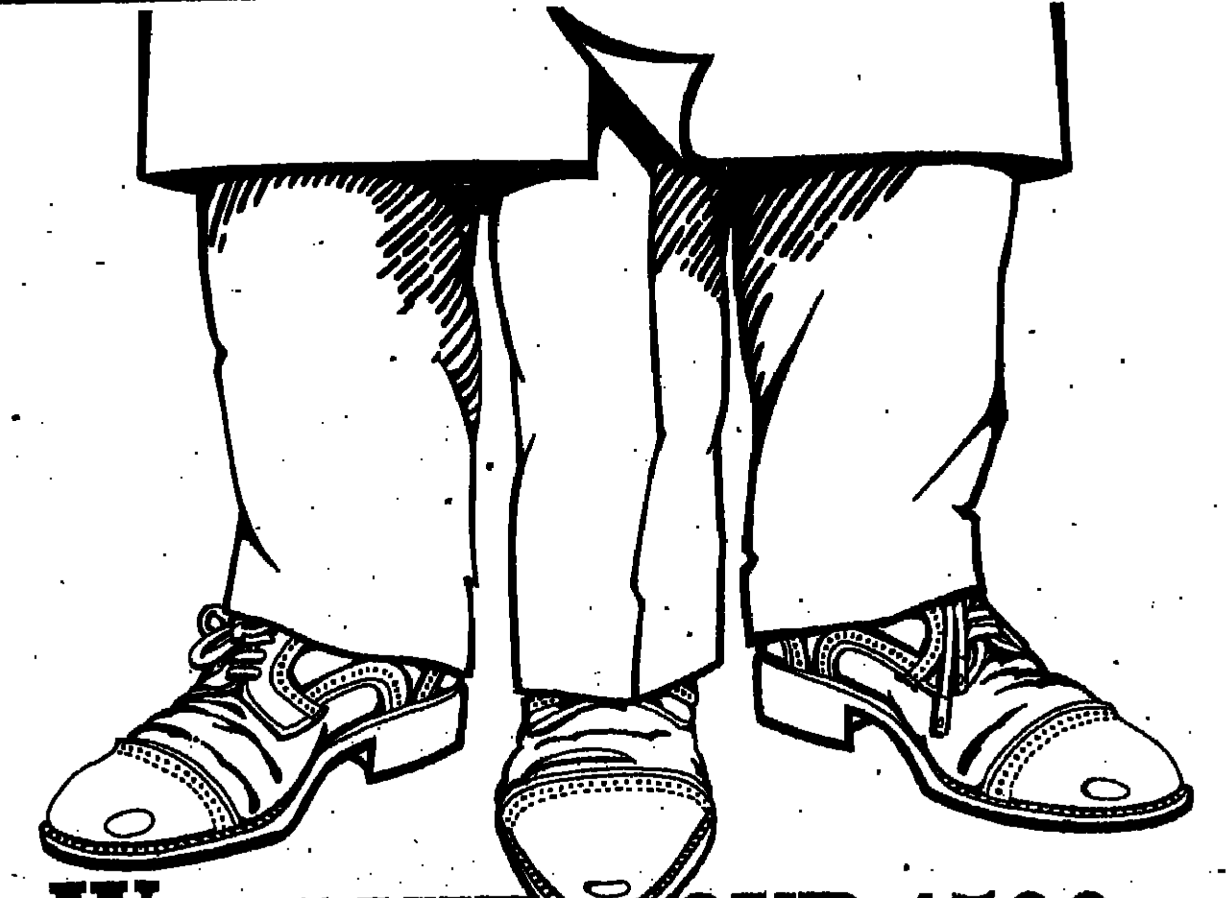
The development effort has the full backing of McCormack & Dodge, which is anxious to break into the European market.

Although known widely in the US as a major competitor to giant financial software house MSA, in Europe McCormack & Dodge is relying on national agents rather than its own name. It has appointed agents in Scandinavia, Holland, Italy and Spain, and is using RTZ's own techniques in sales, support, and training to widen its user base in Europe.

Partly as a result of its successful tie with M&D, RTZ Computer Services has won free rein from its parent Rio Tinto Zinc to hunt for other new products to sell. The company plans to acquire products which will fit in with the M&D range and its own Fascia modelling system.

Up to now the company has relied on bureau service from Somerset County Council when developing ICL products. ICL itself co-operated in the development of the ME29 version of GL/Plus.

The first ME29 version of the GL/Plus product has already been delivered to Colt Cars of Cirencester. Colt was in such a hurry to get the system up and running that it sent one of its helicopters to collect it. Installation was complete in two days.



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JACKS . . . A second operating system for Data General's business micro.

HP to create 200 more jobs in UK this year

by David Craver

CONTINUED major investment in the UK is promised by Hewlett-Packard after a year in which its UK after tax profits jumped 35%, on top of a 19% increase in turnover.

"Yet another successful year in a long history of growth," said Roger Cooper, manager of UK computer operations. Compound growth has been 28% annually over the past four years, Cooper said, with sales in the year ended October 31, 1981 just short of £119 million. Net earnings rose to £8.4 million.

Some 200 jobs were added by HP in the UK in 1981, and another 200 will be created in 1982, which will take the company's workforce in this country to over 2,000. Last month an international "software factory" opened in Pinewood, which will serve as HP's international centre for development of products for the interactive office.

In 1982 Pinewood will release electronic mail and electronic filing cabinet products to be marketed worldwide. These will be added to networking and word processing packages for the office, released last year.

Cooper says that HP is a "company that usually gets its impetus from its products," and he notes that 70% of its sales in 1981 were based on products announced in 1978 or later. He believes that HP's experience with networks systems will stand it well when competing for the automated office market.

While he praises, for example, Wang's word processing expertise, Cooper says HP has a definite edge in having tested and debugged software for distributed systems.

Other UK investments HP announced in 1981 include a disc manufacturing plant in Bristol which by 1985 will employ 1,300 people; a new centre for customer support; and a 50% increase in the South Queensferry telecommunications facility near Edinburgh.

HP's worldwide results for 1981, which were released in December, showed sales of $3.6 million, up 15% and net earnings of $312 million, up 16%.

COOPER . . . "Company gets its impetus from its products".

DG adds 'outside' software

by Philip Hunter

USERS of Data General's small business computer now have access to the full range of applications packages written by UK software house Micro Products Software Ltd (MPSL), following a deal between the two companies.

Data General has implemented MPSL's BOS/5 operating system on its Enterprise 1000 desk-top micro in order to use MPSL's business software, which includes the usual battery of ledger and invoicing packages and database management.

MPSL is not the only company writing under the BOS/5 operating system, so users of the Enterprise will also be able to run software written elsewhere.

But BOS/5 is not available on larger systems, so there will be no upgradability. At the same time Data General is going for a single user system, based on the existing floppy discs, to begin with.

"But when Winchester hard discs become available on the Enterprise, we will discuss multi-user systems," says MPSL managing director Alistair Jacks.

The BOS/5 operating system will run in addition to Data General's proprietary operating system on the Enterprise. "We will continue to develop packages under our own system as well," comments a Data General spokesperson.

So Enterprise users will have to contend with systems written under two operating systems. But Jacks dismisses this as unimportant.

"Most businessmen couldn't care about the operating system," he says.

The Enterprise is based on Data General's 16-bit microNova microprocessor.

There is not seen to be any competition from the new IBM personal computer, which according to Jacks, is too small to run the software.

How IT can aid the Minister

by Donald Kennett

THE Central Computer and Telecommunications Agency this week starts a major investigation into how information technology can improve efficiency in government departments.

An important target area is the work of Ministers and senior civil servants, although the investigating team is prepared to find that sophisticated integrated systems could upset Ministers' work more than they helped it.

Team leader Eileen Conn, who is responsible for new and novel applications implemented through the CCTA, said that the government currently spent about £150 million a year on computing and it was rising. The main concern was to get a payback from the hidden costs and ensure that new applications were both beneficial and cost justifiable.

The first phase of the investigation is a fact-finding exercise in which private secretaries are being asked to fill a questionnaire and discuss the activities in their offices.

The team has an open mind on what will emerge from this, but it expects to have some preliminary conclusions by May. If they are interesting to the computer industry, it will publish them.

This will lead to the next stage, which is to identify any applications for existing products which can be implemented quickly.

Finally they aim to identify areas for long-term discussion to build the foundations of an integrated information system which can continue to be developed into the next century.

The team is in contact with many organisations concerned with the planning of office systems and works closely with the experimental projects in the Civil Service, such as the Xionics local network in the Cabinet Office and the Zynar network of 12 Apple IIs in the CCTA itself.

CONN . . . Investigating computer use in government departments.

Dutch firm imports Tantel

by Donald Kennett

TANDATA Marketing has won a £300,000 export order for Tantel viewdata adapters from the Dutch micro systems house Computer Communique Technologiques Industrie. Deliveries of the first 700 will start at the end of this month, with the remainder of the total of 2,000 to be delivered within 12 months.

The adapters will be sold for use with the Dutch public viewdata service Viditel which is expanding rapidly with the help of a government subsidy of about £50 per adapter.

Tandata's former parent, Tangerine Computer Systems, last month sold Tandata to Clyde Petroleum for £500,000, but the two will continue to be bound by exclusive contracts.

Clyde's backing will fund expanded production facilities and a number of development projects including a "viewphone" which will combine television, telephone and viewdata and will be able to handle a variety of national systems such as the Canadian Telidon viewdata system.

BASF signs first contract for Hitachi's number-cruncher

by Boris Sedacca

BAGER to maintain its position in the market for plug-compatible mainframes, BASF has signed the first deal with Hitachi for a new technology processor, the M240H.

The machine is more powerful than IBM's 4341 Group 2, operating at 1.8 million instructions per second against IBM's 1.4 mips, and uses 64K memory chips.

Hitachi is already selling the M240H in Japan with its own operating system, but BASF will sell the PCM version as the 7/65. IBM's own machine in that power range, codenamed Olympia 4, appears to have been delayed but is expected to be launched towards the end of the year for shipments in late 1983, according to industry sources.

This would then be followed by an attached processor version with a multi-processing operating system, or with the Olympia 5 operating at three to four mips.

For BASF, the 7/65 is positioned between the 7/60, which corresponds to the 4341 Group 1 running at 1.2 mips, and the 7/70 running at 2.5 mips and upwards.

The 7/70 is the same machine as the AS7000 from National Advanced Systems and uses ageing technology. NAS is expected to announce a replacement machine in about two months' time.

A four-colour screen, normally provided as an add-on option on the 4341, is provided as standard on the 7/65, and all four block multiplexer channels operate at three Mbytes per second, which means that they can all accommodate data streaming storage devices and will accept all IBM disc drives including the new technology 3380.

SALES BRIEF

First system for REME

COMPUTER Technology's Momentum non-stop computer system is to go to REME, the Royal Electrical and Mechanical Engineers, for use in its Donnington repair centre. Momentum is a range of hardware and software packages designed to add fast recovery facilities to existing CTL 8000 series machines.

REME's package will be added to its 8066 and it will release for R&D work an 8046 currently used for back-up.

TV success

WITH an order from London Weekend Television for a Honeywell DPS-8/20, Honeywell has now placed machines in 13 of the 15 UK television companies. LWT's system will be used to run air-time sales software from Enterprise Air Time Systems, replacing a Burroughs-based real time bureau service. Success in the UK is leading Enterprise to sell its Honeywell-based system in the US and continental Europe.

College micros

HULL Technical College has installed 12 Triumph Adler Alphatronic microcomputers costing over £24,000 and supplied by Bollin Business Machines. The micros will be used for adult education, initially in programming and operations, but later in non-computing subjects. As well as buying in software, the college has developed some of its own. Plans include a financial package and a number of emulators for communicating with mainframes.

Viewdata on tour

COMPUTEX has won its first travel industry order for a viewdata system. Sunmed Holidays, the second biggest tour operator specialising in trips to Greece, has installed Computex's viewdata software in its Digital Equipment PDP-11/44. Computex's first overseas installations will be in Brussels and New York in April. UK customers so far include retailers, nationalised industries and systems houses.

Trend for DHSS

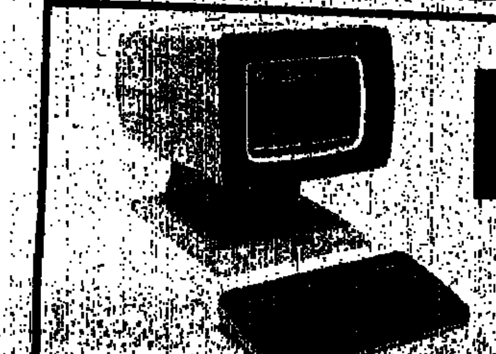
PHICOM subsidiary Trend Communications has won an order from the Department of Health and Social Security for 450 data preparation terminals to process benefit payments via batch links between DHSS offices and computer centres. The terminals each include an edge-punched card reader, paper tape reader and punch and a printer. They are due to be installed by April.

Prime order

STOKE-BASED engineering firm George Hall Group has ordered a Prime 250 on which to base the activities of its new systems house subsidiary Hall Business Systems. Hall will sell Prime-based turnkey systems and operate a bureau service, both using financial software from Memory Computer Services of London.

For filming

BROWN Boveri Kent has won a £200,000 order from Ilford for two K90S Digital Equipment PDP-11 based control computers.



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Viewdata highlighted at Info 82 Exhibition . . . Donald Kennett reports

'IT — only way to cut rising office costs'

VIEWDATA, telex, and voice operated telephone dialling were highlights of the Info 82 Exhibition last week, where IT82 project director Kenneth Barnes described information technology as the only way that companies could cut administration costs sufficiently to produce goods at a price the market could bear.

Office staff costs had risen 464% in the last 10 years, he said, while productivity had risen only 3%, and administration typically accounted for 40 to 50% of companies' costs. In contrast, factory floor production had risen 84% over the same period, largely through investment in capital equipment such as robots.

Only half of UK companies now use microelectronics, Barnes added, and the government sees promoting wider awareness of the potential benefits as crucial to the future of the country.

Private viewdata systems based on Canadian and French display coding schemes were announced by Poulter Computervision Systems of Leeds and Beelines Southern of Staines at the show.

The Poulter system starts at £17,500 and can be expanded to hold up to 20,000 pages and support up to 64 terminals. The terminals are based on Motorola 6809 processors with 64Kbytes of RAM, but they need external modems to link across the telephone network. The editing terminal designed for the system is based on a Digital Equipment LSI-11/03 with two floppy disc drives, a graphics tablet and two colour monitors.

Beelines' French-style system is to be available later in the year in the form of a gold-sprayed Commodore Pet. The version on show was sprayed black and designed to display Prestel-format viewdata.

This version is supplied with a colour graphics printer claimed to be the first to be capable of printing from a viewdata screen. A dual floppy disc drive and the Bee private viewdata software take the price to £4,295. A later version will have an 80-column VDU display capability as well as the 40-columns of the viewdata format, and about the same time a teletext adapter is to be added to the range of options.

Viewdata also featured in Zynar's demonstration of its Cluster One local network for Apples. The network was shown with six terminals attached, although it can support up to 64, and two applications were being shown for the first time, the network file server and the Messenger electronic mail system. The network now supports Apple IIIs as well as Apple IIs.

Other companies to feature viewdata included IBM, which launched viewdata facilities on its bureau service last month, Systime, which recently took on the Computex package, and Tandata, which demonstrated the Oki Microline 80 impact matrix printer printing monochrome Prestel graphics under the control of its Alphatantel adapter.

The bureau Computel demonstrated the Thorntel private viewdata system it has licensed from Thorn. One of its first half-dozen clients for the service, the Borough of Kingston, showed its Kingtel private viewdata service — the first to be run by a local authority.

Kingston is one of three boroughs where the Department of Industry has funded the installation of 12 viewdata terminals to gauge public reaction to Prestel.

Kingston's terminals are installed in locations including four citizens' advice bureaux, a community project, a Post Office, a branch of Tesco and a Jobcentre. It also has terminals of its own in the six branches of the library.

By April, the service is to be available to domestic users.

BARNES . . . "Wider awareness vital to country's future."

'Dial by voice' kit

VOICE-OPERATED telephone dialling was demonstrated by the City Computer Centre at Info 82.

The company's technical director, Kevin Neville, said he was not sure what applications the system could have or what quantities it was likely to sell in, but the idea had fascinated him sufficiently to get it working on an Apple II microcomputer.

The system uses a speech recognition unit from Mountain Hardware in the US which plugs into the Apple's spare card slots. Dialling is achieved by a board designed for another company's security system which makes a telephone call and delivers a recorded message if an alarm is set off. The dialler plugs into the Apple's games paddle socket.

Software to drive the system was produced by Neville and he has sold the first five add-on sets for between £300 and £500. The software scans the stored vocabulary in blocks of 64 words, comparing each one with the input taken from the speech interface. Using the whole of the Apple's 48K RAM gives a capacity of about 600 words.

The next step is to produce a self-contained voice-operated telephone, with a keyboard and a two-row 30-character display, which Neville hopes to do by the summer, including getting British Telecom approval. His target selling price is about £300.

Telex traffic still heavy

TELEX is slow, expensive and clumsy to use, but it gives access to a million subscribers all over the world and still carries heavy traffic.

Two approaches have been taken to make telex communication more at home in the office and both were in evidence at Info 82.

Case demonstrated one method, the use of a message switch to link word processors to each other within an organisation as well as to telex subscribers in the outside world. Ferranti showed its recently-launched microprocessor-based message switch, which can support up to 12 terminals or lines and allows messages waiting to be sent to be given different priorities.

Chernikeeff's message switch supports up to 32 terminals or lines. These can include local networks, optical character readers and various kinds of computer. It also offers mnemonic code dialling and storage of master copies of standard messages for tailoring at the time of transmission.

Teletex was a major theme of the Siemens stand. Siemens is one of the main suppliers of teletex terminals for the West German network.

CSL Business Systems showed a paper tape punch designed to attach to an Apple microcomputer, as well as its older units for typewriters. Similar devices were on show by Sisco, GNT Automatic and Teleprinter Equipment.

It all depends what you mean by 'robot'

by Boris Sedacca

THE glamour of robotics is sparking off a debate about what constitutes a robot, with each industrialised country putting out a number for its robot population as a measure of progress.

The figures vary widely from country to country because some, like Japan, want to include machine tools in their definition of robots. Others, like Britain, use a purist definition which narrows the field.

According to Tom Brock, executive secretary of the British Robot Association, the definition of a robot is a device with at least three "degrees of freedom", the term used to describe axes of movement on a robot.

Now Brock has slammed the French for using their own definition of a robot, so inflating the figure for their robot population.

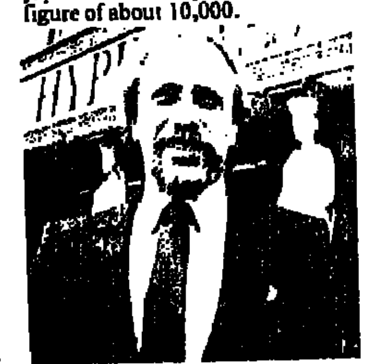
"The French always want to be ahead with everything so they give a figure of 38,000 for their robot population. The real figure (according to the BRA definition) is 600," he said.

"Switzerland says it has 8,000 robots while the figure is more like 15. When comparisons are made with the UK's robot population of just over 700 robots against those types of figures, then one is not comparing like with like."

Brock also points out that the UK figure is for robots installed, not just robot sales. The BRA definition of robots places the UK in fifth place behind Japan (10,000), US (5,000), West Germany (2,300) and Sweden (1,700).

The number of robots put in place in the UK in 1981 was 342, which doubled the installed base to 713 systems.

BRA expects the UK robot population to outstrip that of the Japanese in ten years' time to a figure of about 10,000.



BROCK . . . "The French always want to be ahead."

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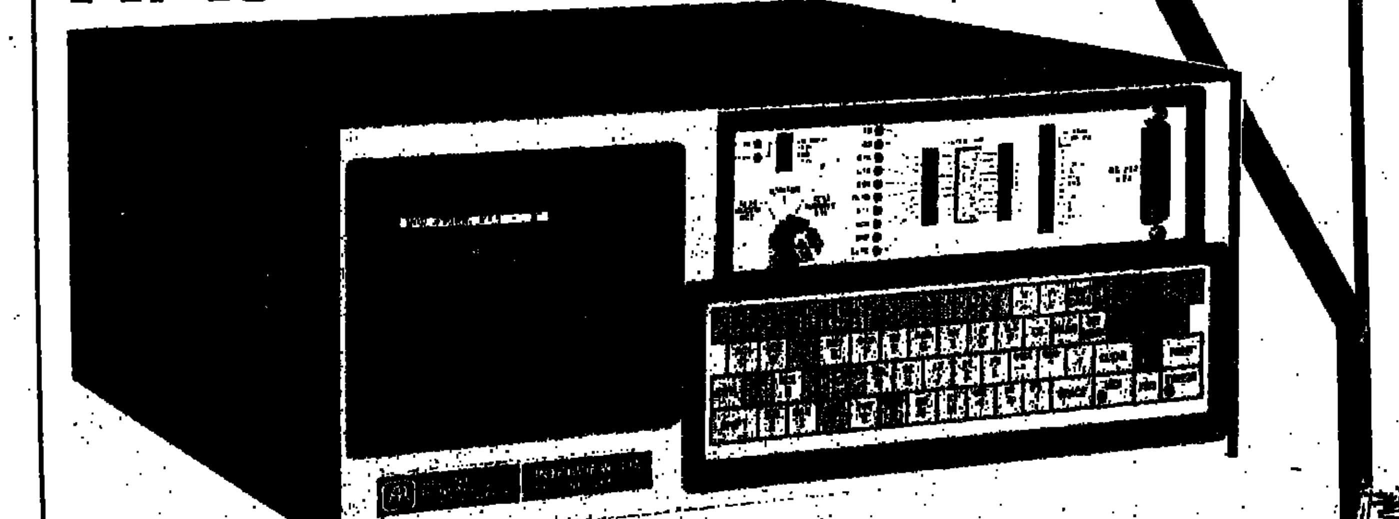

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The Complete Answer

'IBM to drop VM software as a migration tool'—Amdahl

by Boris Sedacca

IBM will drop its Virtual Machine (VM) environment as a migration tool, according to the predictions of its major plug-compatible competitor, Amdahl. As a result, users of IBM's large-scale 3801 processor may find migration from smaller machines more difficult in the future.

VM is a piece of software described as a "hypervisor". It allows a number of different operating systems to be co-resident on the same machine as though each had its own dedicated machine.

In the past, IBM has used VM as a strategic migration tool to allow users to upgrade from one machine to another, or to move to newer operating systems from those operating systems which were to be "stabilised" by IBM – in other words, they would no longer be supported with new facilities.

More recently, VM was given additional significance when IBM launched the second model in its top-end H-series, the 3081 Model K. Unlike its Model D predecessor, Model K was considered to be a true H-series machine with an "extended architecture", larger memory addressing facilities, and an operating system more attuned to multiprocessing than the standard Multiple Virtual Storage (MVS) used on the conventional System 370 architecture.

VM would allow migration from MVS to the new operating system which was also conveniently called MVS in order that users did not become too alarmed at the prospect of converting from one operating system to another.

But according to John James, regional support group manager for Amdahl UK, the VM interface on the 3081 will gradually be eroded. "It will not be needed within the interpretative machine environment on the 3081," he said.

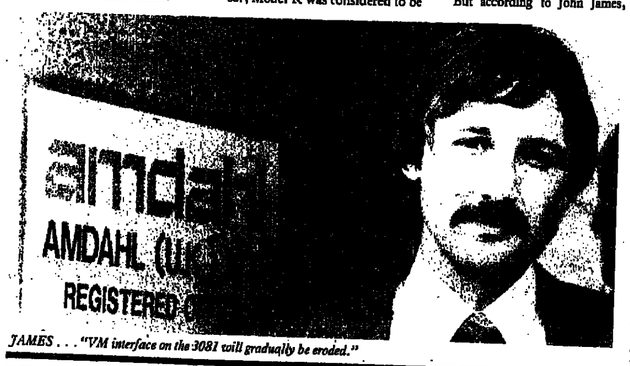
James contended that the various operating systems now running concurrently on top of VM would eventually run directly on the hardware through the use of interpretative microcode.

James also predicted that the two major IBM time sharing operating systems, Time Sharing Option (TSO) and Conversational Monitor System (CMS), would converge into one piece of software. CMS makes more economical use of computing resources than TSO which is essentially an add-on option to the batch-oriented MVS operating system.

However, CMS does not run realistically without VM. It was developed because IBM could not provide TSO on top of the smaller DOS operating system which IBM wanted to kill but which was given a new lease of life as DOS/VSE on the 4300 Series, announced in January 1979.

IBM would also be able to provide software subsystems for high-speed teleprocessing within the interpretative machine environment, James said.

Special purpose processors would be launched for front-end network management, back-end database management, and array processing.



JAMES . . . "VM interface on the 3081 will gradually be eroded."

More IBM compatible software

by Claire Gooding

MORE help for IBM users in running their installations efficiently is on its way. In a drive to get its name and products better known in Europe and the UK, Software Module Marketing, already well-established in the field of IBM-compatible systems software in the US, is to sell and support products from Australia and Pittsburgh-based system house Duquesne.

Duquesne's products, which generally deal with the "mechanics" of running an IBM installation, were previously handled by peripherals manufacturer Memorex.

SMM's other find is the Australian-born JCL conversion tool JOL, from Clarke Computer Systems in Melbourne. JOL was previously handled by systems house SPL in the UK, and failed to make its mark partly because of installation and support difficulties.

SMM's choice of products which need support and some thorough technical backup was a deliberate part of the firm's strategy to become better known in Europe. Its reputation is high in the US, but until recently it has made no great effort to promote its products here, largely because of support difficulties.

Now that SMM has set up shop locally in Beckenham, Kent, as well as a similar sales and support operation in Germany, the main obstacle has been removed.

BT fibre cables record

by Donald Kennett

BRITISH Telecom's Martlesham research laboratory has set a world record in optical fibre transmission by sending a 140-megabit-per-second digital signal down a 108 kilometre long cable with no repeaters in it.

Repeater spacings of 8km are being used in the optical fibre cables currently going into the ground. A dramatic increase in 100km spacing could change the way networks are configured and the economics of installing them.

The level of performance achieved has come by improving on work done in other parts of the world. The basic fibre-making process is a variation of the chemical vapour deposition technique invented by Corning Glass and improved by Bell Labs, both in the US.

One of BT's improvements overcomes the peak of moisture absorption that occurs when making fibre suitable for carrying 1.55-micrometre light waves. This wavelength has advantages for high-speed transmission over long distances, but the process used to prepare the fibre for this wavelength can easily make it cloudy. Current systems use shorter wavelengths.

BT has also been able to keep the core of the fibre more consistently close to the centre, which means that low-loss joins can readily be made. The 100km cable at Martlesham has 10 joins in it, made with the aid of a microprocessor-controlled jointing jib.

NEWS BRIEF

'Let BT raise capital'

FOLLOWING British Telecom's declaration of £140 million profits in the six months to last September, the Telecommunications Users Association has called for a package deal which would give BT the right to raise capital on the open market. In return BT would agree not to raise prices in the current year and to relate increases to inflation in the future.

Growing market

CII-Honeywell Bull has signed a series of new distribution agreements for its OEM products with Megavolt in Belgium, Adcom Data in Denmark, Auctel in France, SKS in Germany and Digicom in Italy. The company now markets OEM products in eight European countries and in Canada.

Aussie project

ICL Australia has won a £1 million order from Logan City Council, Queensland, for a 2946 against competition from IBM, Wang, NCR and Honeywell. The project will be managed by ICL Facilities Management Services for five years. In Malaysia, ICL has taken orders valued at over £1.4 million to supply DRS20, ME29 and 2900 systems for public and private sector customers, and has sold a £250,000 ME29 to the University of the West Indies in Trinidad.

Graphics split

UK COMPUTER graphics manufacturer Westward Micro Systems has split from Counting House, which marketed Westward's products, and formed its own inhouse marketing department to achieve a direct relationship with its customers. Westward, which has a new factory in Tewkesbury, Gloucestershire, has products designed to challenge Tektronix in the UK and European graphics market.

Following suit

ALFA Romeo has followed British Leyland and Opel to become the third car manufacturer to sign up for ADP Network Services' Onsite teleprocessing service. The service will be linked to an IBM mainframe at the company's headquarters near Milan and will be accessible from its offices in 300 cities in Europe and the US, for cash and investment management, as well as prices and technical information.

Design disciplines

A CAD/CAM database system which combines design disciplines for draughtsmen, designers and engineers has been developed by Calma, the UK subsidiary of United Telecommunications in the US. Using the Dimension III system, all the information for one project can be combined to facilitate production of such documents as bills of materials, weight calculations, cost estimates and finite-element modelling.

Telecompromise

CABLE & Wireless is expected to announce today (Thursday) that it has accepted a compromise on international connections for its proposed alternative telecommunications network, Mercury. The licence from the government is to state that international connections will be allowed via circuits leased from British Telecom, rather than directly to overseas telephone companies as C&W would have liked.

Finance system

A FINANCIAL modelling system for the IBM System 34 has been released from PCR Inc, a US-based company which specialises in the IBM business market. The system is called Easyplan and is designed for end-users to do their own financial analysis for accounting, marketing, production, distribution and administrative as well as financial management.

Petrol stations go online to UK banks

by Donald Kennett

ELECTRONIC funds transfer has arrived in the UK. Britain's first online link between a point-of-sale terminal and a bank was opened in Aberdeen last week in a joint venture between BP, Clydesdale Bank and Dunfermline-based terminal manufacturer Fortronic.

All three companies are sharing the costs of installing debit card terminals for a six-month trial in two Aberdeen garages that sell BP petrol. Like cash dispensers and bank counter terminals, debit card terminals debit the card-holder's current account directly, without the need for the invoice and remittance required by credit card systems.

This trial, called Counterplus, follows a trial last year in Norwich involving five oil companies, Barclays Bank and Fortronic, which used credit cards with electronic terminals.

BP's retail business manager Ian Ward said that the methods used in Norwich would not be continued.

And although the Aberdeen venture was also a trial, it was already planned to extend it as soon as enough experience was gained.

There were a number of differences between the two trials, Ward said. In Norwich, transaction details were stored at the point of sale and transferred to Barclaycard once a day and the cashier visually authenticated the customer signature.

In Aberdeen, transaction details are immediately transferred to a central system which already supports the Clydesdale Bank's 1,700 branch counter terminals and 100 cash dispensers. This system, based on a Univac V77/800, authenticates the customer by checking a four-digit personal identification number, and does a credit limit check.

The advantages claimed for Counterplus lay in BP research data which shows that only 11% of its customers like using credit cards to buy petrol. BP customers prefer to use cash or equivalents such as cheques and debit cards because they feel they can more easily keep regular expenditure within a weekly or monthly budget.

Holders of Access cards issued by the Midland Bank or its two subsidiaries, Clydesdale in Scotland and Northern Bank in Ireland will soon come into the system. This will involve agreeing transaction limits, issuing personal identification numbers to card holders and deciding how to allow Clydesdale to check cards without making unnecessary revelations.

Offering the service to holders of cards issued by other banks will depend on those banks providing reciprocal services from which Clydesdale's customers could benefit, or being prepared to pay for each transaction their customers make through Clydesdale.

WARD . . .Debit cards are likely to be more popular than credit cards.

It is planned to extend it to other retail businesses at the end of the trial. Supermarkets and jewellers are likely to be early participants. This will involve a large expansion of the bank's data network which currently consists of eight regional nodes based on Univac V77/800s with V77/200s as front-end communication processors.

Point-of-sale terminals in the shops will be linked by leased line to their local Clydesdale branch and into the network via branch controllers and modems from Lion Systems Developments; which are already in use with the terminals in the bank's 360 branches.

Atari set for move into telesoftware

by Donald Kennett

A FURTHER boost for telesoftware is on the way through the involvement of a major consumer-oriented microcomputer supplier.

Ingersoll Electronics, which markets Atari home computers in the UK, is close to making a decision on its entry into telesoftware. Marketing manager Pip Errington said that three or four alternative devices from UK manufacturers had been under evaluation for use with the Atari machines and programs had already been written to load software or textual information from viewdata or teletext adapters.

The company was also investigating arrangements for publishing software by remotely-accessible means, she said.

These areas are being investigated at Atari in the US, but although sales volumes justified producing European television interfaces in the US, volumes would be too small at this stage to justify producing telecommunications interfaces there, because of the different requirements of each PTT.

Ingersoll has been looking at a new version of the Microtantel viewdata adapter made by Tangerine Computers and due to be available at the end of the month. The new version has a V24 data interface for connecting to micros, instead of the cassette interface used in the original. Ingersoll expects to finalise its decision in the next week or two and Errington admitted that the Microtantel had a strong chance of being chosen, although the situation could easily change before then. "It's a question of finding the right product at the right price," she said.

A likely initial order would be for 250 units.

French office plan will involve fewer firms

by Jack Gee

FRANCE's government-sponsored Information Technology Agency has given the go-ahead for a national automatic office equipment plan. But it will involve fewer firms than the last French administration intended to bring into the project.

A senior official of the agency said: "The roles in this plan will be shared out less widely than was previously envisaged. Our aim is to avoid duplication."

Industrial observers in France say that Olivetti is likely to see its share of the plan reduced, to the advantage of Thomson-CSF and its computer subsidiary SEMS.

Following the recent promise of government aid to help Intertechnique increase by 40% annually the share of its turnover from information technology, generous assistance is also being made available to other companies.

IER, a company which specialises in airline ticket printers and has a 50 million francs (£5 million) turnover, is to receive State funds totalling 15 million francs (£1.5 million) to open a new factory at Besançon in the Alps. The cash and plant will be used to develop and manufacture automatic office equipment.

SESA which has a 225 million francs (£22.5 million) turnover, and won its spurs by setting up the Transpac data packet switching network, is about to receive State funds to develop a computerised mailing system.

Alcatel-Electronique, a subsidiary of Compagnie Generale d'Electricité, has undertaken to expand its automatic office equipment activities to reach a 12 billion francs (£1.2 billion) turnover by 1985.

Alcatel's efforts will range over facsimile, word procession, databanks and mail processing. CGE had planned to introduce Alcatel-Electronique's shares on the Paris Bourse, but has dropped this idea now that nationalisation of the group is imminent.

Digitising top priority

by Jack Gee

THE French government is to press ahead with telecommunications projects, despite initial reluctance by the Socialist leadership.

Digitisation of the telephone network will be a top priority. By 1987 the percentage of digitised phone lines will rise from 32% to 76% on local networks and from 17% to 63% for inter-urban communications, according to Herve Nora, head of the information technology department at the French Telecommunications Authority.

From the beginning of next year French Telecom will begin equipping Transpac, the data packet switching network, with experimental videotex access. Teletel, the French viewdata system, will be connected to Transpac later.

Following the order last year for 300,000 television directory terminals from Télic for the Brittany experiment, another manufacturer will soon receive an order for between 300,000 and 500,000.

Nora said: "Videotex was originally designed for the general public, but it must also be directed at the professional market, so it is a wrong approach to replace a computer terminal by a viewdata terminal. Terminals must be multi-purpose."

The French Telecom informatics chief envisages a market of up to 500,000 terminals within the near future for the computerised phone directory which has now been called Minitel.

COMPUTASTARS ENTRY FORM

We have read and accept the conditions of entry for the Computastars/Computatug 1982 and would like to enter

Main competition	.....Men's teams	.....Women's teams
Small units	.....Men's teams	
Veterans	.....Men's teams	
Computatug	.....Men's teams	.....Women's teams

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Company .....
Address .....
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Signature of DP manager or equivalent authority .....
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please circle appropriate region

Enclosed is £..... to cover the entry fees for the teams(s). Cheques should be made payable to Computastars Ltd.
In all matters relating to the rules or conditions of entry, the decision of the organisers is final.

Please send entry form and fees to Computastars, 117b High Street, Croydon CR0 1QG. Telephone 01-688 6690

Dates and venues: Crawley, Saturday, May 15. Enfield, Sunday, May 23. Barnsley, Sunday, June 13. Birmingham, Saturday, June 26. UK finals: Birmingham, Saturday, July 24.

If you have a query on Computastars please don't contact us at Computer Weekly – get in touch with the organisers at 117b High Street, Croydon CR0 1QG. Tel.: 01-688 6690.

Varying degrees of skill are displayed at the water jump in last year's steeplechase event at Cleckheaton.

Get into shape with the 1982 Computastars

DISCOURAGING news this week for the Computer Weekly Computastars team – despite our determined efforts, organiser Gordon Cairns has refused to give us a bye into the final.

So the CW training programme moves into top gear, and unsightly pounds just melt away as we punish our bodies mercilessly in an all-out effort to sweep all before us in the forthcoming competition. Believe you me, fighting the flab comes very hard indeed.

But your team's training can start with an even more energetic exercise – fill in the entry form and run, yes run, down to the post box with it. Really dedicated entrants can forget the stamp so they have to run back to the office, stick one on, and run back to the post box. It's not easy to be a superstar you know.

More training hints next week, but in the meantime, keep those entries coming in.

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Zygal
The last word in new ideas
presents the Digital personal computing option for the VT 100.

Zygal Dynamics, already one of this country's leading suppliers of office computer terminals, now presents possibly the world's most exciting personal computer package - the Digital CP/M.

The Digital CP/M personal computing option package includes CPU (Z80), Dual mini floppy drives, Diagnostic disc, User documentation and guide, Installation hardware

It means that the VT 100, the world's most widely used professional ASCII video terminal, can be turned into your own desktop office computer in minutes. No sacrificing easy-to-read commercial quality video. And set-up functions you can personalize for yourself right from the keyboard.

Other features include: smooth split screen scrolling, double height - double width characters, reverse video. It also features the decade's fastest-growing family of software - from high-level languages to everyday financial modelling, word processing, mail list, statistical packages and data base communications.

The Digital connection enables Zygal to offer a complete range of products for your every computing need.

Think Zygal for the Digital CP/M VT 100 personal computing option. Or any Digital terminal. Think Zygal for all the leading names - Diablo, Fujitsu, General Electric.
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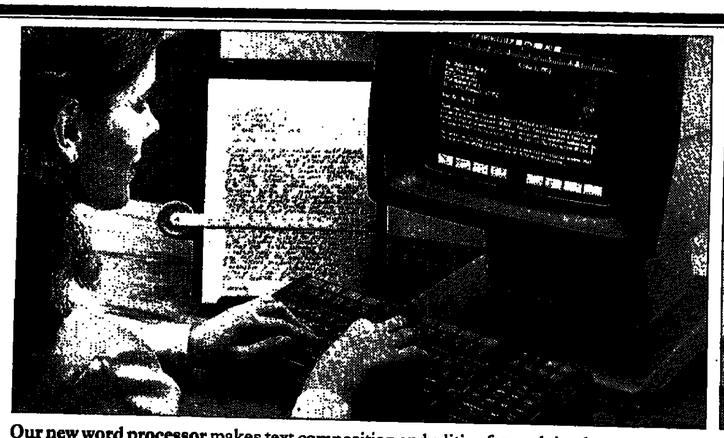
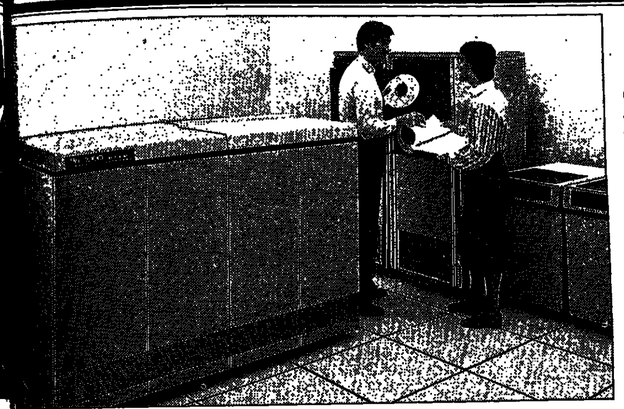
The Interactive Office.



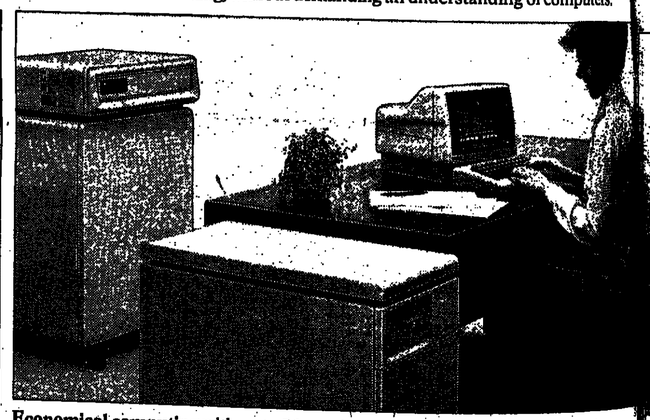
Our new word processor makes text composition and editing fast and simple. Because it is linked to the computer, it can also process data.

This manager's workstation gives business professionals easy access to the information they need for decision-making, without demanding an understanding of computers.

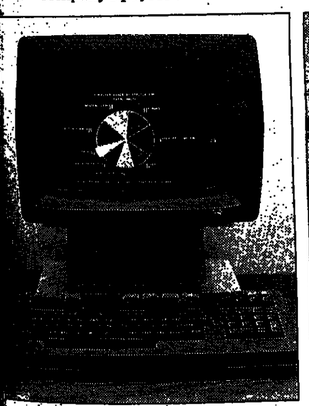


Our new high-performance HP 3000 Series 64 can handle 100 interactive users while processing big batch jobs like the company's payroll.

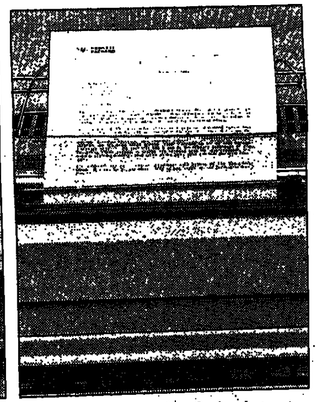
Our personal office computer, the HP 125, is specially designed to handle a manager's individual needs – including word processing, graphics, and data analysis. It communicates with big computers, too.



Economical computing with up to 56 terminals. That's what you get from the new HP 3000 Series 40. Use it as a central processor in a small office or as part of a network.



Graphics created on this low-cost terminal can be plotted on paper or transparencies.



High-quality printing for business correspondence and reports can be generated on this letter-quality printer.

Electronic mail and filing for individual users will be part of The Interactive Office later this year.

High-volume printing on this laser printing system virtually eliminates pre-printed forms, letterhead stationery and long queues at the copier.

Data communications can expand The Interactive Office across the country or around the world.

Report generation is simplified by new software tools which let business professionals create reports and summaries in minutes without programming.

Hewlett-Packard announces a major contribution to productivity in the office. It allows you to integrate the four major resources your staff need to do their jobs faster and more effectively – document management, personal computing, support for decision making, and communications.

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If you'd like to see The Interactive Office at work, call your local Hewlett-Packard sales office and we'll arrange a demonstration. You'll see what a difference it can make to your business today, and how it can grow to assure even greater productivity tomorrow.

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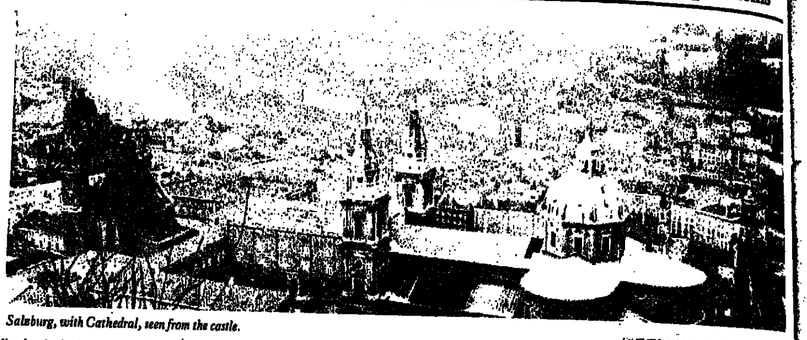
CW282

Rory Johnston reports on the Salzburg meeting of the Club of Rome, a group which addresses world problems

Micros – 'for better or for worse'



Salzburg, with Cathedral, seen from the castle.

ADVANCES in the microelectronics of weapons systems are making it extremely likely that there will be a global nuclear catastrophe within the next few years.

But at the same time, compurers are so enhancing the capabilities of non-nuclear defence systems that the very secure Europe which would result could be made completely nuclear-free.

RADA . . . Gloomy picture.

That was the message presented to the latest meeting of the Club of Rome by Frank Barnaby, former head of the Stockholm International Peace Research Institute. His grim warning was based on the fact that new nuclear missiles are so accurate that they can destroy the other side's weapons on the ground, thereby eliminating the balance of deterrents.

Barnaby offered instead the hope that European countries might switch to computer controlled "non-provocative defence systems" which would allow much of the nuclear arsenal to be dismantled.

The Club was also warned that changes in technology were posing a serious threat to Third World economies, and that consequently a completely new approach to world development was required, based on self-reliance.

This was needed to avoid "technological colonialism", in the words of Alexander King, chairman of the International Federation of Institutes of Advanced Studies.

The Club of Rome met in Salzburg to hear the results of a report on microelectronics and society, compiled with the support of the Volkswagen Foundation. The Club is a group of 100 distinguished international academics and researchers looking into world problems, and its best-known project to date has been the study entitled Limits to Growth.

The microelectronics report is called For Better or For Worse, and in addition to a summary of the technology it presents analyses of possible effects on macroeconomics, microeconomics, employment, job content, global interdependence, and war.

Barnaby's thesis of "non-provocative defence" claimed that with a country's borders ringed with sensors, remotely controlled vehicles, and satellite surveillance linked to a central computer system, and small mobile missile forces with very high fire power, the balance of power would be changed back completely to what it was in World War I, with defence being much more powerful than attack.

This would enable Europe to repel a conventional attack without the need for nuclear weapons, which could then be dispensed with. Otherwise a nuclear catastrophe brought about either by mistake or terrorist action was inevitable, he said.

Juan Rada, a Chilean working at the International Management Institute in Geneva, painted a gloomy picture of world-wide automated production eliminating the Third World's competitive advantage in labour costs.

Since the North-South dialogue was entirely based on the assumption of this advantage, the dialogue would soon founder completely, Rada said. In addition, the First World economic models being applied to the Third World were already obsolete — new ones were drastically needed.

Databases specifically compiled for developing countries were needed, he said, in areas such as traditional medicine.

Rada is already working to get IBM, Kuwait and Pakistan interested in a bibliographic database of Islamic science. This could even be of use in modern particle physics, faced as it is with problems that baffle traditional Western scientific method.

Complementarity between countries should be the key to a new approach to total world development, Alexander King said. It was essential that some countries should not end up as the sole providers of technology that others, lacking technical know-how, would only receive.

King's own Federation is organising a meeting in the Ivory Coast in April to discuss specific problems and opportunities raised for Third World countries by technical changes such as fibre optics and bioengineering.

BARNABY . . . "Europe could be safe and nuclear free."

A promising experiment was already under way in Venezuela, King reported, whereby farmers sent in weather data to a central computer and received back advice on when to sow, harvest, dry crops and the like. This could boost food production by 30%, he suggested.

Much of the Club of Rome meeting was taken up by rehashing of ideas long since done to death in the UK: inevitable mass unemployment from micros, is technology neutral, alienation by technology, society at the mercy of technology, riches for the few and poverty for the many.

Adam Schaff, the Polish philosopher and social scientist, claimed that a laissez-faire attitude to development could lead to "total destruction", while declining to say how.

From Germany, Wolfgang Mazurek proposed that technologists should swear a "Hippocratic oath" only to develop things that are to the benefit of mankind and not to its detriment.

The issue of whether technology was neutral had become a theological one, Alexander King pointed out, appropriately enough as it was in the presence of the Cardinal Archbishop of Vienna, and followed Adam Schaff's reference to an encyclical from his fellow countryman, the Pope. Entitled Laborem Exercens, this expresses concern on the issues and is being taken by Schaff as moral support.

Klaus Lenk of the University of Oldenburg expressed concern about how technology could increase the power of bureaucracies, but he was sceptical of the ability of data protection legislation to do anything about this. On the contrary, he said, data protection could lead to a less open society.

The Club of Rome's founder, Italian Industrialist Aurelio Peccei, stated the obvious when he said the meeting had not solved the question of whether microelectronics would be "for better or for worse", but he echoed the feelings if not the reasoned arguments of many participants when he warned that "we should look at the cultural effects of the technology", if we were not to "upset our inner balance" and "become ever more powerful barbarians."

From Moscow, German Gvishiani.

Concern for civil liberties

A NOTABLE participant in the Club of Rome meeting was Professor German Gvishiani, who is director of the All Union Research Institute of Systems Analysis in Moscow as well as head of the International Systems Analysis Institute in Vienna, and son-in-law of the late Premier Kosygin.

Whether micros turn out for better or for worse depends entirely on the choices people make, Gvishiani told the meeting.

The Soviet Union was very enthusiastic about the potential of micros to increase output, he said, And how could they turn out "for the worse" in Russia's planned economy where there need be no unemployment? "By increasing surveillance and control," he replied.

Aurelio Peccei, founder of the Club of Rome, with the governor of Salzburg State, Wilfried Haslauer (centre) and a conference delegate.

SCHAFF . . . Beware of a laissez-faire attitude to development.

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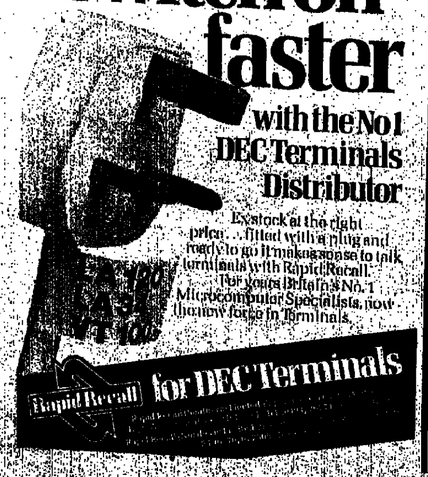

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If you can't beat 'em, join 'em – micro packages from bureaux

DESPITE timesharing bureaux' insistence that increasing use of microcomputers will not affect them, it is obvious from the number now offering software packages for micros that they are seriously worried.

Although the objective of preventing companies from being seduced into transferring all their business to their own microcomputer is common, the approach taken by time sharing bureaux varies.

Computer Management Group of Croydon started a scheme a year ago to rent equipment out to clients, and ADP Network Services is now offering financial modelling facilities using MicroModeller from the time sharing service. Others offer the software for customers to run on their own machines.

The latest company to enter this area of the market is US-owned Comshare, which has about 1,500 users of its time sharing service in the UK and US combined, a network built up over the last 10 years.

"You have to be realistic – you can't take an ostrich approach. If you can tackle a problem in a different way you should be telling your clients, because if you don't you will lose their business anyway," commented Glyn Read, strategic planning director of Comshare.

As the first step in its new approach, Comshare has launched Fastplan, a menu-driven financial modelling system, which runs on any microcomputer with a standard CP/M operating system.

"We have been doing quite a lot of special purpose micro systems for clients in the past, some of which have been connected into our mainframe. The problems we have had have been because we wanted a system that was easy to learn and easy to teach, but with sufficient power to be of some use," explained Ian McNaught-Davis, UK managing director of Comshare.

Fastplan is a menu-driven system which carries a full range of modelling facilities including such things as "what if" or "Goal seeking", as well as normal financial functions, logical calculations and report writing. It is written in Basic, and runs in any CP/M environment with 56Kbytes or more of memory.

Originally developed in the UK by Mike O'Connors, an independent consultant, it is already in use in many installations. Clients in the UK include the Ministry of Defence, the Department of Health and Social Security, Austin-Morris and Bulmers Cider.

Ian McNaught-Davis, MD of Comshare UK.

"This is not a Mickey Mouse entry into the microcomputer market," emphasised Read. "Over two years we have made the transition to become more of a computer services company and spread our wings. An obvious omission on our part was shown up by the proliferation of micros in business."

Fastplan is the first of a series of products Comshare plans for the micro market. Within the next few weeks a micro version of another modelling system will be released, which will resemble Visicalc in the type of facilities offered.

System could make the programmer redundant

DATABASE programmers may not be too thrilled by the Application Development System launched by Cullinane, which could effectively make the ordinary programmer redundant.

ADS aims to get users to write their own systems online with the minimum of professional DP assistance, so that user requirements do not get lost in the Chinese whispers process of analysis, design, programming and implementation.

"Our objective is to have a far more skilled system developer who applies mental energy to understanding user requirements and de-mystifying programming," explained Vic Morris, managing director of Cullinane UK.

ADS/OnLine structures applications into an interactive dialogue during which the user and analyst assisting him gradually builds up the system. Data definitions stored in the data dictionary, which forms the core of the IDMS database, are automatically retrieved and used in the application.

Many programming chores that would be performed manually in a traditional environment such as terminal input/output, screen formatting, database housekeeping, data editing and verification and error handling – tasks that might occupy up to 80% of coding effort – are handled automatically by ADS/OnLine. It is compatible with Cobol and PL/1.

ADS/OnLine is one of several new products announced by Cullinane as part of its IDMS-1982 system, which it claims is the most comprehensive and integrated DBMS system ever developed.

Escape, another of the new products, enables users who already have a DBMS system to migrate to IDMS without conversion or changes to existing application code.

The new Distributed Databases System will support either shared or distributed databases, or a machine that the user has bought specifically to process and adminster the database.

"This facility will become increasingly more important over the next four or five years because the cost of hardware is dropping and people can see the advantages of having machines distributed throughout the company, especially those that can talk to each other," said Morris.

Also included in the IDMS-1982 system are enhancements to eight existing products.

MORRIS . . . de-mystifying programming.

SOFTWARE BRIEFS

Competition for schools

A RECORD number of ... from UK schools and co... expected for the National C... ter Software Competition ... the University of Kent, ... sored by Barclays Bank. The ... ner in each category will ... Kent Software Trophy and ... and the computing department ... the winning student up to £... worth of computing equip... Closing date for the competi... February 28. Entry forms ... Kent Software Trophies, Co... ing Laboratories, The Univer... Canterbury, Kent. Send an SAE...

Legal action

LEGAL action is being take... US-based manufacturer Pri... Data Corp against Inter... Business Information Syst... another hardware and soft... distributor, and against one ... customers for alleged copy... infringements, unfair compet... and breach of contract. Pri... contends that IBIS copied ... substantial amount of its own ... operating system, then marketed ... under the name IOS.

WP launch

A SOFTWARE house which ... cently won two contracts fr... £100 million nuclear power pro... has now launched a word proces... sing facility for use on Rediffusion ... computers. Knutsford Data ... Cheshire has developed a low ... add-on facility called Scripte... which it claims is particularly ... suited to multi-terminal use.

Portability

PORTABILITY is the key ... new multi-tasking multi-proces... sing operating system announced ... by Gould, Systems Engineering ... Laboratories' computer systems ... division. MPX-32 2.0, which runs ... on Gould's own range of 32-bit ... minicomputers, supports remova... ble disc packs, enabling user and ... system files to be fully portable ... and has a single terminal service ... manager controlling batch and in... teractive work so that jobs can be ... run concurrently in either mode.

Map network

OLDHAM-based Map Computer ... Systems is to set up a national ... dealer network following interest ... shown in its software for practising ... accountants. Other CP/M based ... products available from MCS are ... packages for solicitors, ICL emula... tion, time recording and container ... (Calor Gas) accounting.

Midas dealers

THREE new overseas distributors ... have been signed up by Midas ... Computer Services to sell its CP/M ... based operating system for use on ... Sord microcomputers. They are ... GSI Services of Paris, Tradesek ... International of Barcelona and Eu... rocompute of Dundalk, Eire.

Consultancy

A MICROCOMPUTER consul... tancy has been set up for the ... structural engineering profession ... by Jacys Computing Services, ... specialists in this area of the mar... ket. Although JCS produces and ... markets its own software, particu... larly for concrete design, it says ... that it aims to provide advice about ... programs from other suppliers, ... possibly also offering first line ... support.

Micro database

A DATABASE system for ... microcomputers is being launched ... by the PR company that helped to ... develop it. Co-operation between ... Murray Evans Associates and ... client Vision Business Systems ... has resulted in PR Talkback, a ... CP/M based system holding in... formation about contacts, geo... graphical location, type of media ... and interests.

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Small business systems

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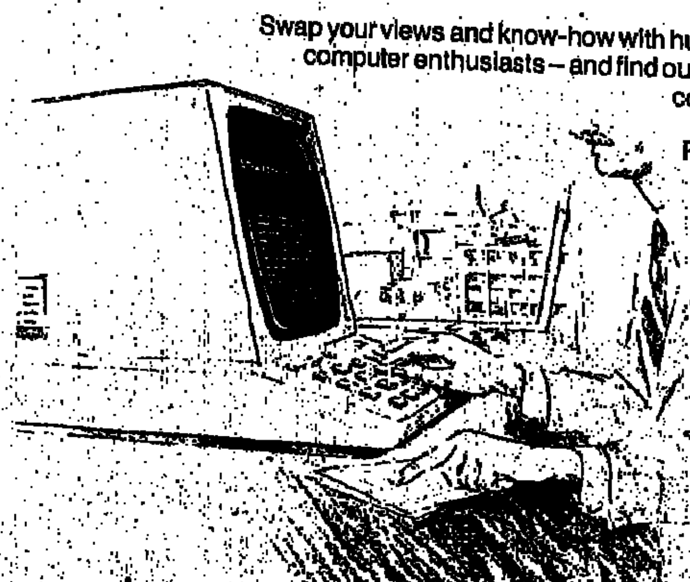
At The Computer Fair you can see and compare an enormous range of personal and home computers. Find out what they can do and which one would suit you best. Talk to the experts and discover for yourself how much – or how little – you need to spend. Choose from an amazing abundance of software programs and packages, cassette units, VDU terminals and scores of computer games.

Swap your views and know-how with hundreds of other home computer enthusiasts – and find out a whole lot more from computer professionals.



Plus – The Micro Mouse Contest.

Come and watch the incredible ingenuity of computer controlled "mice" and how they find their way (or not!) to the centre of a maze. The knockout heats and the Euromicro British Final can all be seen at The Computer Fair!

Bring the whole family – don't miss this opportunity of bringing computers into your everyday life.

Bringing computers to everyday life

Getting the best from TV advertising

ESCALATING advertising expenditure in the UK has triggered a marketing consultancy into launching its first computer package.

Blackheath-based O'Herlihy Associates has released a TV budget optimisation system called TVBOP to help companies ensure that they receive maximum benefit from funds invested in television advertising.

TVBOP takes the spread of brand sales within regions and over time, together with profit contribution. It then combines these with the target audience, the time of day at which it takes place, the frequency, and assumptions as to how the advertisement works.

From this data, the computer generates the optimum allocation of advertising money over time and region to achieve maximum sales from the money available.

"The major element was developed from our normal consultancy work," said Paul Baker, a director of O'Herlihy Associates, which numbers Kellogg's, Bowater-Scott, Heinz and Allied Breweries among its clients.

"Getting the advertising right can be worth as much as 6% in sales, which might be about £1 million in some cases," he added.

TVBOP has evolved from other internally developed statistical packages, and is the first one that the company has offered for sale externally. It has taken a team of four about three years to complete.

Companies wishing to use the package will pay between £5,000 and £10,000 for an annual contract, depending on the number of brands involved in the processing. On top of this, they will also incur bureau charges, as TVBOP has been designed to run on the DEC 10 system at the United Computing bureau.

Text edit made local

CUTTING costs by making text editing a local facility is an option now offered by Northern Telecom for its 435, 445 and 585 series of distributed data processing systems. This method would make savings on using a text editor based on an IBM host computer, it claims.

Called Sedit, the new software provides a shared, multi-user text editor compatible with the IBM Series 1 Structured Programming Facility (SPF). It may be accessed from up to 16 data stations, depending on the system's memory capacity.

Features of Sedit include menu selection, and global change commands to alter the entire file with one instruction.

Access to MVS/SP3

SOFTWARE has been developed to replace the hardware modification needed for an IBM System/370 to run the MVS/SP3 system control program.

It is a transparent simulation of the MVS/SP operating system, which, when coupled with IBM's MVS/SP or MVS/SE operating system, increases system performance by up to 12% without additional memory, claims National Advanced Systems, the US-based developer.

"The software sits in the system and traps MVS microcode instructions, then whips them into the top end of storage," explained Maris Rolmanis, systems support manager for NAS (Europe).

"The hardware to do this job can be very slow and expensive."

Business booms in UK small firms market

CONFIRMATION that the UK is making a strong showing in the small business computer market comes with Altos distributor Logitek's prize-winning performance in selling systems.

For the second year running, Logitek, one of two UK distributors of kit from California-based Altos, has won Altos' prize for sales volume in Europe, with 1981 sales of $3 million. And things are looking better.

Jim Pickup, managing director of the Lancashire-based company, said that it had also won the prize for exceeding its quota for the year by the largest margin, and this year was aiming for $5 million sales.

Logitek not only outsold the twenty or so European distributors last year. According to Pickup, it also did better than any of the US distributors and only one company, a Canadian OEM, sold more – but not under the Altos label.

Altos clearly expects big things of the UK. When announcing details of its 16-bit range last October, Yorkshire-born Altos president Dave Jackson said he saw Britain as the number one European country for microcomputer use.

Since then Altos has set up a UK operation in Ascot, under sales manager Roger Llewellyn, to oversee the UK market and explore further marketing channels.

"We are strongly looking to OEM deals, to increasing awareness in the UK of Altos catering for OEMs, through distributors or directly," said Llewellyn.

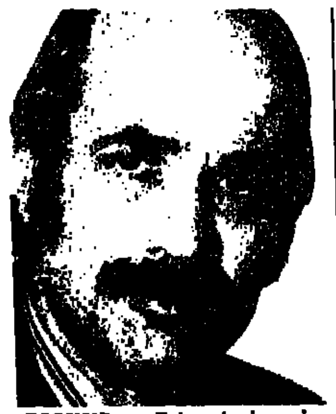
The UK offshoot will provide support services, including field engineering, but the extent of the operation is not yet finalised. Staff recruitment is proving a problem, both in defining the requirements and in finding suitable people once these have been fixed.

Microcomputer experience is the main stumbling point, and Llewellyn sees signs of hope for graduates here. "Six months work with micros means you're experienced."

Logitek is expanding too. A new factory will be opening next month and more technical staff have been recruited. An R&D department is to be set up, looking into things on the communications side.

It will develop networking software and any hardware modifications needed.

Pickup is looking to expand Logitek's product range. He feels the need for a second string 16-bit microcomputer, about 60% of customer enquiries being for the 16-bit Altos machine, which is not yet available in quantity.



PICKUP . . . Prize-winning sales performance

US co-operation deal boosts gate arrays

THE growing movement towards gate array technology has gained extra impetus with a five-year co-operation deal between California-based companies LSI Logic and Advanced Micro Devices. The agreement will promote bipolar LSI efforts by both companies.

The two presidents, Wilf Corrigan of LSI Logic and Jerry Sanders of AMD, both say the planned agreement will give a key method of optimising research resources.

"This agreement combines the efforts of a leader in logic array technology with a leader in bipolar LSI technology," Corrigan says.

The first moves in the shared research deal will be the development of gate array technology, aimed at producing high performance ECL arrays containing 2,000 to 3,000 gates, with delays below one nanosecond and with on-chip RAM. Sharing such research efforts will, according to Sanders, allow "more new products per R&D dollar."

Under the terms of the agreement, AMD will be licensed by LSI Logic to manufacture, market and sell the LCA 1200 series ECL macrocell arrays, which consist of 600 and 1200 equivalent gate devices.

AMD will also standardise on LSI Logic's LDS 1 computer-aided design system, a design automation system for simulation, test generation and layout of complex arrays.

LSI Logic produces logic arrays using both bipolar (ECL) and CMOS technologies, and now has agreements with other companies covering both these areas. The AMD deal, which provides alternate sourcing of bipolar arrays at both the silicon and design interface level, complements LSI Logic's previous agreements with Toshiba and California Devices for CMOS arrays.

For AMD, which recently signed a technology exchange and cross-licencing deal with Intel, the agreement gives the efficient use of resources that success in the IC market demands, according to Sanders.

It also gives an entrée to the fastest growing segment of the semiconductor market. Logic arrays are expected to reach sales of $1,500 million by 1985, an annual growth rate of 50%.

Ferranti broadens its scope

AIMING to break away from the military and broaden the market for its F100-L microprocessor, Ferranti Computer Systems has appointed its first distributor.

Swift-Sasco of Crawley, Sussex, has signed a franchise agreement as sole distributor of the F100 range of bipolar 16-bit microprocessor and support products. Software support is planned with the installation of a Ferranti FDS10 development system in Swift-Sasco's customer support centre.

David Stone, Ferranti Computer System's sales manager, says that in taking on a distributor, Ferranti hopes to move into the industrial market, where users would exploit the operating temperature range the device offers. Applications in harsh environments are foreseen.

Swift-Sasco already holds franchises for microprocessors from Signetics and National Semiconductor. The Ferranti device will be its first 16-bit processor, but marketing manager John Kelly expects it to be joined this year by Signetics' 68000 and NatSemi's 16000.

Japanese chips show 'poor workmanship'

JAPANESE reputations for semiconductor quality are beginning to take a knock, and US-manufactured parts are running neck and neck with Japanese 16K RAMs for quality.

Engineers from US consulting firm Integrated Circuits Engineering of Scottsdale, Arizona, say they were surprised to find some shortcomings in production samples of 16K RAMs from four Japanese manufacturers. None were uncommon faults, but there were indications of poor workmanship in chip dicing and wire bonding techniques.

Japanese manufacturers have traditionally had a better reputation for quality than US companies, but ICE notes that the quality of the US parts has now reached the same level as that of the Japanese circuits.

This view is echoed by Hewlett-Packard's system division general manager, Richard Anderson. Two years ago, in the first of a series of pronouncements on the standard of US devices compared with Japanese, he said that tests at HP showed US parts were six times more likely to fail on average than Japanese components.

By late 1980, this difference was reduced, with the Japanese having only a two to one advantage, and now Anderson reports the two "running neck and neck." He sees the competition being more company against company than country against country.

Despite this, HP, a major buyer of semiconductor devices, buys the bulk of its memory devices from Japanese manufacturers. Anderson says that although the US companies have succeeded in improving the product quality rating, HP has yet to find one that can consistently match the best of the Japanese.

For 16K RAMs, Japanese companies are now thought to hold more than half the world market. With the next generation of memory devices, the 64K RAMs, they are thought to have an even bigger share – about 70% of the market.

Quantity, rather than quality is the problem with these devices. Companies supplying them are those which can deliver working parts in production quantities.

ICE looked inside 64K RAMs from US and Japanese manufacturers, and found that the construction of the Japanese parts was no better than the US ones.

This indicates that the Japanese production processes are not better than the US, but that the Japanese companies achieve the high quality levels – of all types of device – through more rigorous testing to sort out the defective chips.

AMD samples 16-bit bipolar processor

ADDING to its range of 16-bit microprocessors, Advanced Micro Devices is now sampling the Am29116, its own design bipolar processor. AMD also second sources Zilog's Z8000 processors and, from October last year, Intel's 8086 family.

The 29116 is intended for high speed control applications. It has a 100 nanosecond cycle time for all instructions, which are designed for bit, byte and word manipulation. "It is not a number cruncher," says Dave Brand, AMD's UK general manager. "That's the 8086 end."

He feels that with this device, AMD is breaking into a new market. Some UK customers have already had samples – multinational DP companies and others active in the military field according to Brand.

Features on-chip include RAM for 32 16-bit registers and a 16-bit barrel shifter. Functions contained in the instruction set include rotate-and-compare and cyclic redundancy check generation, with the complex instructions executed in a single microcycle.

Devices are not cascadable, says Brand, so the Am29116 is not a 16-bit wide bit slice. A bit-slice microprocessor is a component implementing a slice of a traditional CPU, usually four bits wide, which can be joined to produce a machine of any desired word length and microprogrammed with the desired instruction set. AMD's Am2900 series dominates the market for bit-slice devices.

The Am29116 costs £152 in hundred quantities, and selected customers can expect a four to six week delivery time according to Brand. He expects prices to drop by about 30% a year until 1985.

SKAR . . . *Confident that Norsk will go on growing at 40% a year.*

Norsk set to raise millions with 80% increase in profits

THE financial weather in Europe may be cool, but coming from the North has had little or no effect on supermini supplier Norsk Data. Oslo-based Norsk has clocked up pre-tax profits of £6.4 million for 1981, up 80% on last year's £3.54 million.

The after-tax return, reflecting the high rate of corporation tax in Norway, was cut back to £4 million, leaving an effective rise of 56%. The order input, a good indicator of the company's state of health for the coming year, rose by 44% to total £49.3 million.

Turnover for 1981 rose 52%, from £31.3 million in 1980 to £47.5 million for 1981.

In the wake of what can only be described as excellent results, the company has decided to sell 350,000 shares on the London Stock Exchange later this year.

This represents about 20% of the stock of the company, and will raise over £12 million based on the recent share price in London of £34.50.

London brokers are confident that Norsk will have no trouble selling the stock and some financial analysts say Norsk is likely to exceed this year's sales and profit growth next year.

Sales per employee at £60,000 were also at record levels, though this is partly attributable to the fact that Norsk subcontracts much of its PCB manufacture and assembly.

During 1981, the company used about £1 million of the £3 million which Mobil Oil made available for research and development into advanced oil reservoir modelling and other oil industry related software.

The company sold a large Nord 100-based system to Pemex, the Mexican national oil company, for remote control over the operations of 64 drilling and oil production platforms in the Gulf of Mexico.

This was one of several overseas sales which pushed Norsk's export turnover to 58% of total turnover. The company also announced an $8.5 million order from the Hughes Aircraft company in America.

The order follows the successful $30 million sale which Norsk achieved to provide simulators for the F16 US Air Force fighter bomber.

Norsk president, Rolf Skar, one of the three engineer scientists who founded the company, said that he was proud of Norsk's performance, particularly in such a poor European economic situation. He also expressed confidence that Norsk would go on growing at 40% to 50% a year.

Skar used the occasion of the financial announcements to reveal a series of new additions, five in all, to Norsk's 16-bit and 32-bit range of minicomputers.

The most interesting of these machines, the new top-end model for the 500 series, designated the 560 runs at 1.7 mips (millions of instructions per second) giving it a similar performance to DEC's VAX 11/780. According to Norsk, the machine costs about the same as the VAX.

However, using a new set of microcode and without changing the hardware configuration, the Norwegians have persuaded this machine to run at about [illegible] mips, giving the mini the same performance as the bottom-end of IBM's mainframe systems. A major feature of the Norwegian machines is the fact that they all run under the same operating system, Sintran.

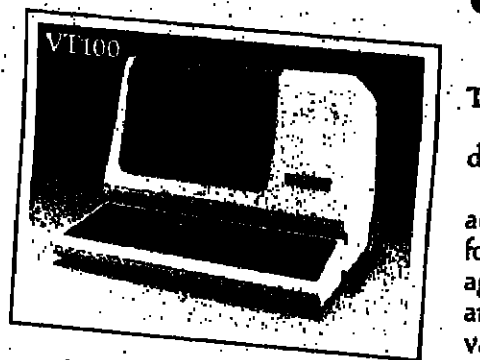
All the N500 super minis are front-ended by the 16-bit N100 which handles all input/output and job scheduling.

With so many of the required tasks accomplished by the integral N100 FEP, the main machine is freed to provide very fast multi-user service with the minimum of overhead.

Norsk has recently attempted to get away from its dependence on the academic and scientific markets, particularly in the UK, by introducing new commercially oriented products.

The first of these machines, a 16-bit satellite processor costing about £26,000 and running virtual memory, was launched this week. The machine will fit under a desk and is intended to be used as a front in distributed systems.

Digital has created a family of terminals based on the idea that nothing works like a VT100.



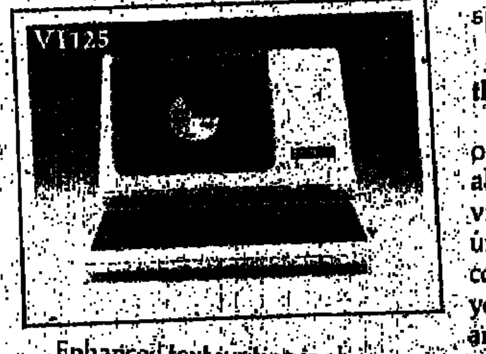
If you believe that nothing is quite as good as the VT100 in terms of power, performance and reliability, we have some good news.

We've taken all that you admire and created a new family of terminals. The VT100 family – with a variety of performance features at a variety of prices. And quality service – for end users and OEM's.

Affordable Business Graphics. The VT125 Graphics Option

If you already have a VT100, the VT125 Graphics Option offers the first really affordable graphics terminal for business people.

With a unique new graphics instruction set called ReGIS, you can instantly turn numbers into easily understandable pie diagrams, charts, bar graphs and curves. With simple but powerful commands and minimal demand on your CPU.



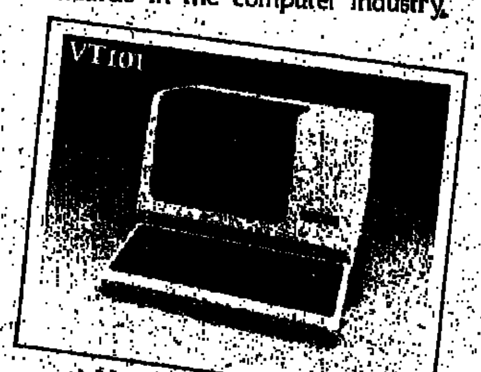
Enhanced text writing is also available to compliment the graphics. And a colour monitor output is standard.

A Personal Computing Option. The VT18X

Turn your VT100 into your own desk-top, personal office computer.

The VT18X uses the widely acknowledged CP/M* operating system for which numerous application packages are available and new programs are constantly being brought out in a variety of high level languages.

Hard copy can be produced using the LA34-RA. And the whole package is backed by a full on-site maintenance programme that will set new standards in the computer industry.



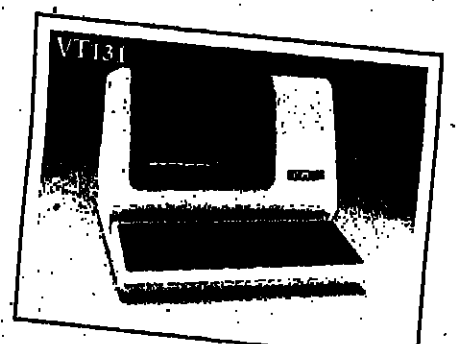
A New Economy Terminal. The VT101

The VT101 has all the well known features of the basic VT100 but at an economy price – designed for people who don't foresee the need to add a printer or to use the VT100's extra space and power.

Alternatively, you might consider the VT131

With the most popular VT100 options but again without expandability – the VT131 has an advanced video package with blinking characters, underlining, and a full 24 lines of 132 column characters. This package lets you maximise Digital's form handling and editing software.

The VT131 comes with printer port and five full and half-duplex protocols. And editing capability, plus block mode transmission.



Then, of course, there's the VT100 itself

The most popular and widely emulated ASCII terminal ever built with enough power and room to support any kind of expanded capability you might need. It's perfect for OEM's developing demanding applications. Or for end-users who'll need the power for added options later on.

The VT100 family is backed by an extensive customer service network with over 900 service professionals throughout the UK – of whom a significant number are dedicated to on-site terminal service.

Digital Authorised Terminal Distributors:
Abacus Electronics PLC (Comma Div.) Brentwood (0277) 811131.
Bytech Ltd. Reading (0734) 61031.
MBS Rentals Windsor (07535) 55211.
Rapid Recall Ltd. High Wycombe (0494) 26271.
Zygal Dynamics Bicester (08692) 3361.
Digital Equipment Co. Limited, Digital Park, Imperial Way, Reading, Berks. RG2 0TR. Tel: Reading (0734) 868711.

*CP/M is a trademark of Digital Research Inc.

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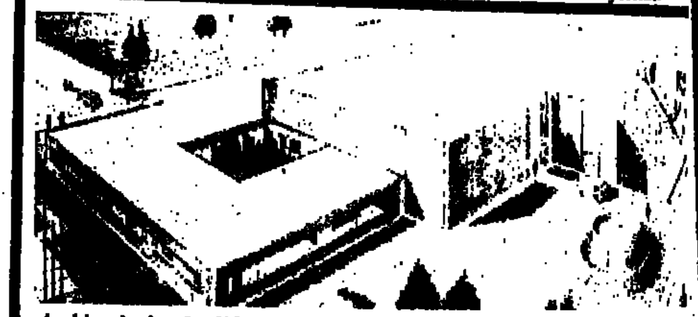
We change the way the world thinks.



Architect's sketch of Verbatim's media coating plant in Limerick, Eire

Sales rise as Verbatim expands Irish plant

VERBATIM Corp, best known to most computer users for its widely distributed floppy discs, has reported a rapid rise in sales and a return to profit for the half-year just ended. The company has also started work on expanding its plant in Limerick, Ireland.

Sales for the half-year to January 1, 1982 were $37.4 million compared with $22.6 million for the same period in the last financial year. The company also turned in a profit of $3.7 million for the half-year compared with a loss of $1.1 million for the first half of 1980/81.

Surprisingly, in the light of the bad results being announced by many US companies for recent trading periods, Verbatim showed a record 70% increase in turnover for the quarter ended January 1, 1982. Turnover for that period was $19.2 million compared with $11.3 million for that same quarter in 1980.

Much of the half year's return to profit can be traced to the good second quarter.

Losses for the second quarter of 1980/81 were $1.2 million, compared with profits of $2.01 million for the second quarter of 1981/82.

Much of the increased sales are understood to have come from overseas, where the company has been expanding capacity and increasing shipments substantially all year.

In line with its aggressive overseas marketing, the company has begun construction on the new research and development centre which will increase its existing Irish plant area by 43,000 square feet and add about 100 employees to the existing workforce of 400.

The Limerick plant is currently the primary source for the company's European & Middle East product supplies. The new centre, which will be partly funded by the Irish Industrial Development Authority, represents a major step forward for the predominantly Irish management of the plant.

Originally, the Verbatim plant was intended as a media test and assembly factory. But Irish teams at the plant have developed a number of new products for the parent company.

Allied with the generous grants provided by the IDA and the new development policy of trying to get companies to build complete organisations including R&D facilities, Verbatim's management in the US was persuaded to extend the plant and to include the R&D centre with the media manufacturing facilities which will be part of the completed factory.

Merger for Datalab

IN LINE with the recent policy of expanding into computer related areas Bell and Howell of the US has acquired all the issued share capital of Mitcham, Surrey-based Datalab, for an undisclosed price.

Datalab, which will continue to trade under its own name and which will retain its design and manufacturing base, will become part of the International Electronics and Instrument Division of Bell and Howell.

New rules boost figures

FOLLOWING a recent change in American accounting rules relating to the way foreign earnings are treated, Mohawk Data Sciences has been able to restate its half-yearly profits to show a 250% increase on the same period in 1980.

The re-stated figures show that MDS had first-half profits of $7.26 million to October 1981, compared with the $2.9 million profit shown before the adoption by the company of the new rules.

by Kevin Cahill

Gene Amdahl's Trilogy venture one month away

WHEN Dr Gene Amdahl arrives in Ireland in a little over one month's time to break the ground for his new computer factory, he will be simultaneously making computer history and taking a bigger financial risk than the UK government did with the De Lorean car plant.

Amdahl will make history because he will be setting the scene for the commercial manufacture of the first entirely new mainframe system, based on new VLSI technology and a new architecture, to be launched this decade.

To get the first machine out of the door, it is estimated that the Amdahl team and its company called Trilogy, will have spent well over $160 million – about £90 million. (The UK government gave De Lorean and his company about £85 million.)

In contrast to De Lorean, Amdahl can look back on a series of successful computer systems designs which virtually make him the father of all the major mainframe systems in the Western world. He is credited with the design of the most successful mainframe developed by IBM, the 360 range.

He left IBM to set up Amdahl Corp, which produced a range of IBM-compatible machines and which currently has a turnover of over $500 million.

Amdahl severed his connections with the corporation which bears his name about two years ago and set up a holding company in Bermuda called Trilogy Ltd. Founders of the holding company are Gene Amdahl, his son Carlton and another director, Clifford Madden.

To take advantage of changes in US tax laws, which allow individuals to invest in limited research and development partnerships and write the investment off against tax, Amdahl then created a fourth party in the Bermudan company, Trilogy Systems.

Using Trilogy Systems, Amdahl set up a limited partnership which was then offered to the American investing public, who promptly subscribed the required $55 million for the partnership to proceed with the development of the so-called computer design, which will be the basis for the new machine.

In the prospectus which Merrill Lynch, the US bank and stockbroking company sent to would-be investors in the partnership, Amdahl has pulled no punches.

He says that the partnership offers investors the opportunity to participate in the economic returns from "a high-risk technological venture," which he defines as "the development of a complete set of design specifications for a commercially marketable, IBM-compatible, large scale high performance general purpose computer system."

The prospectus says that significant cash distributions to the limited partners (the ordinary investors), if they ever occur, will not commence prior to 1985.

Despite the apparently dazzling increases in speed achieved by the ever-increasing density of the logic chips which constitute the heart of a computer system, Amdahl refers to current performance as "the key technological problem currently restricting the growth of performance."

AMDAHL . . . *Trilogy will spend about £90m to get its first machine on the market.*

The prospectus says that this restriction on growth relates to the signal transmission time within the logic systems of the computer. To estimate what Amdahl means, it is worth noting that the biggest Fujitsu machine has effective transmission rates of 35 thousand millionths of a second between circuits, and those circuits are packed to a density of 1,330 per chip. And that is current production.

The UK's Ferranti company is sampling logic circuit chips with 10,000 circuits on each chip, and delay times measured in 17 million-millionths of a second (picosecond). By the time Trilogy launches its machine in the second half of 1984, those very dense, very fast circuits are expected to be in regular production.

The Trilogy prospectus explains in broad terms just how Amdahl and his team will tackle this problem. The team aims to achieve much higher levels of integration in its proposed VLSI (Very Large Scale Integrated) circuits which is then expected to shorten the signal transmission distance and to cut down on impedance (delays) encountered at chip and PCB boundary levels.

Amdahl is saying that the Trilogy team will produce a whole new kind of VLSI. But this is only to be the foundation for the computer design.

To achieve the new design, the Amdahl team is undertaking four separate projects on behalf of the partnership. The first of these is technology realisation, described as the implementation of a reliable process for the manufacture of proprietary VLSI semiconductor devices.

The second project will involve the Amdahl team in the creation of a new computer-aided design system to increase circuit and board integration. Having sorted out the new basic technology, the team will then begin the most secret and most important aspect of the new machine, the architectural definition.

It is from the incorporation of the new VLSI chips and boards into a new structure that Amdahl must look to achieve the real competitive breakthrough.

The architecture, which will define how the new system will achieve its IBM compatibility, will be the key to how Amdahl achieves the desired mips rating of about 45, which will give him the lead on IBM and the Japanese.

CW SHARES TABLE

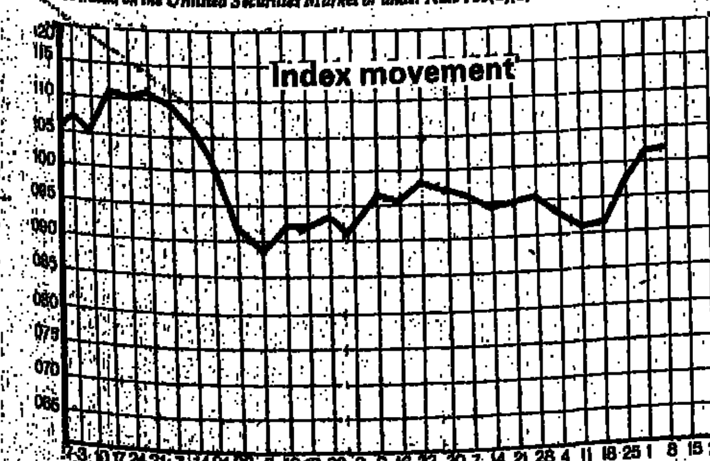
Date 12/2/82 — Index: 101.60 — Change +0.29

Pence 1982 High	Pence 1982 Low	London Stock Exchange Stock	Pence Price	C'nge
183	161	A Comp Tech. (25p)	178	−7
174	150	BOC Int. (25p)	174	+9
23	21½	B Bev Karl (25p)	23	+1
118	101	Chubb (20p)	118	+10
89	48	Cole (R.H.) (25p)	67	−2
260	220	Comp & Sys (20p)	260	+15
700	655	De La Rue (25p)	700	−10
270	235	Extel (25p)	270	+7
670	625	Ferranti (50p)	670	+5
847	802	GEC (25p)	842	−5
51	32	ICL (25p)	48	−3
47	41	Kalamazoo (10p)	45	−2
250	223	Kode Int (25p)	235	−15
229	215	Memec (10p)	220	−
130	110	Muirhead (25p)	130	−
278	262	N'mle ('81) (£0.06)	270	−2
£36½	£31½	Norsk Data	232	−£2½
310	288	Office & Elect (25p)	300	−10
490	445	Philips Lamp (fl10)	490	+20
370	340	Plessey (50p)	370	−
97	88	Quest Auto (10p)	96	−1
430	380	Racal Elect (25p)	383	−2
205	171	Rediffusion (25p)	205	+2
468	431	Thorn-EMI (25p)	466	−5
90	80	Utd CAT (50p)	81	+1
		OTHER MARKETS*		
96	85	Bus Comp (10p)	85	−7
557	450	Comp Serv (£1)	454	−
105	75	Consult (C&F) (10p)	102	−3
160	131	NMW (£1)	160	+17
85	63	Rolfe & Nolan (10p)	63	−
105	75	ScanData (10p)	95	+5
195	190	Star Comp (10p)	190	−5
105	105	Trident Comp (10p)	105	−
96	88	Zygal Dyn (5p)	90	−6
$		US Stocks	$	
26½	20	Amdahl	26½	+½

$ 1982 High	$ 1982 Low	US Stock	$ Price	C'nge
20¾	16½	Apple Inc	18½	−2
26¼	23¼	Auto Data Pro	25	−¾
34	31	Burroughs	34	+1½
48¾	41½	Commodore	48¼	−2
13¼	10	Comp Auto	13¼	+1¼
16	13¼	Comp Sciences	13¼	−1
16½	14	Comshare	14	−
34¾	31½	Control Data	33¾	−1
36¼	33¼	Cray Research	33½	−½
53¼	50½	Data General	51	−2¼
48½	31¼	Datapoint	31¼	−6
20½	18	Dataproducts	18	−1¼
87¼	80¾	Digital Equip	85¾	−1½
23¼	21	Elec Data Sys	21	−1
8½	6	Gen Automation	6	−¼
36¾	32½	Harris	34	+¼
43½	38	Hewlett-Packard	41¼	−2¼
72¾	63	Honeywell	72¼	−½
26½	20¾	Intel	24½	−¾
62¾	57	IBM	62	−½
56	50¾	Litton Ind	53¼	−¼
12¾	11¼	MDS (Mohawk D)	11¼	−1¾
22	21¼	MSA (Mngmnt Sci)	21¼	−¾
10½	10	Mngmnt Assist	10¼	−
8¾	6¾	Modular	6¾	−¾
56½	52	Motorola	52½	−4
19¼	15¾	National Semi	19¼	−
43¾	40½	NCR	43¼	+¼
26¾	23¾	Perkin-Elmer	26	−1¾
23¾	21¾	Prime	22½	−¼
36¾	34½	Raytheon	36¾	+¼
28¼	23¼	Signal	23¼	−3
34	31¼	Sperry Comp	31½	−1
34½	30½	Storage Tech	32	+1½
27½	25	Tandem	25	−2
36	32¼	Tandy	35½	−1½
80¼	70¾	Texas Inst	80	−¼
27¼	18¾	Tymshare	19¼	−¼
36¾	31¼	Wang Lab B	33½	−1½
9	7½	Wyly	7½	−¾

Table shows the closing prices on Thursday. The share index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted where necessary.

**Shares traded on the Unlisted Securities Market or under Rule 163(2)(a).*



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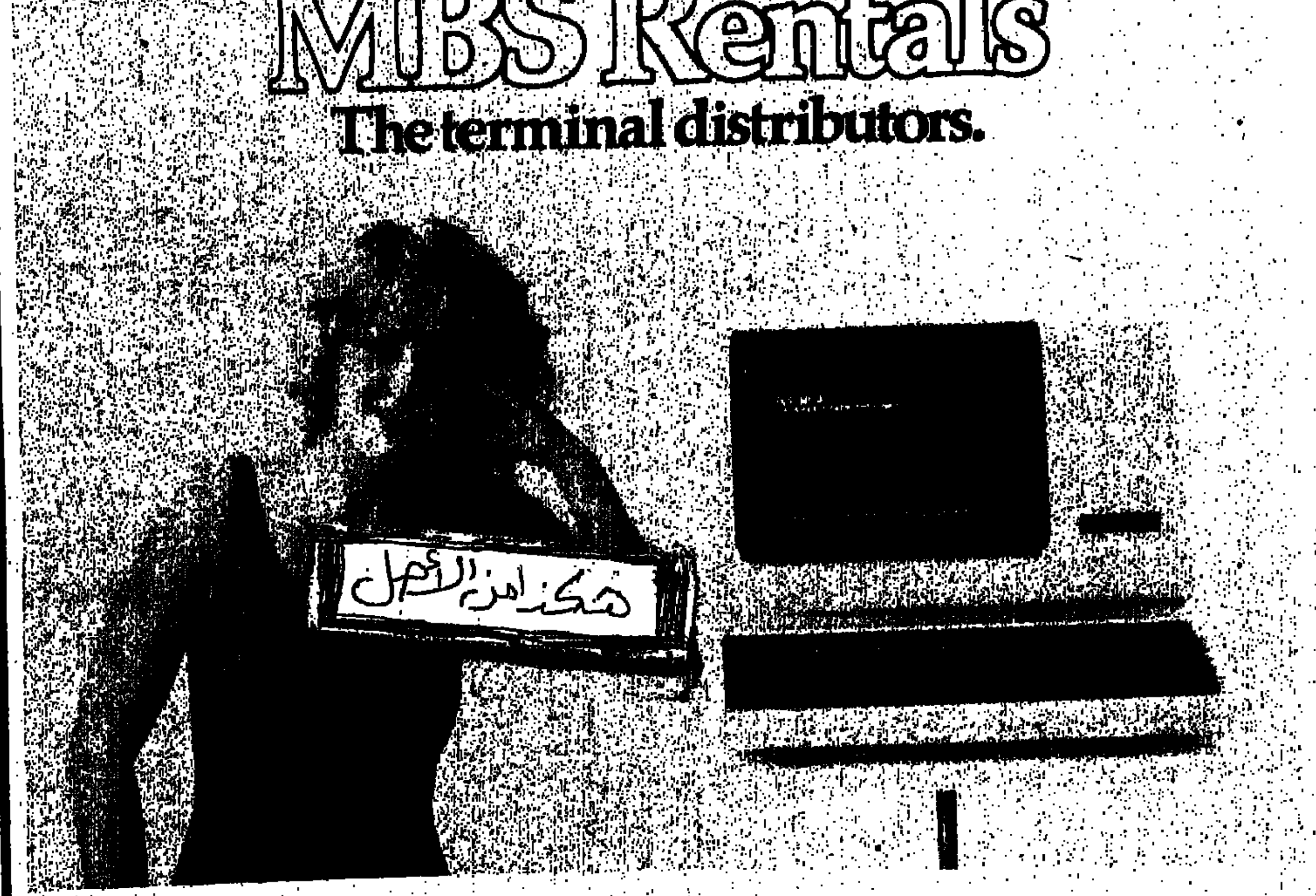

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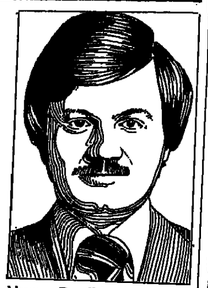
Danger of IT82 becoming Year of the Dog



Norman Revell is a lecturer with the business systems analysis team at City University, London. He is a consultant with IBM and several other companies.

I AM reliably informed by Chinese friends that 1982 is the Year of the Dog for them. We in the UK seem to have adopted the custom of having themes for each year and relating them, not to the more abstract virtues of a recurrent series of animals, but to current social issues such as the Year of the Child.

Information Technology Year might appear an odd choice after the Year of the Child and the Year of the Disabled – themes which were easily identified as being worthy human ones.

Presumably some Whitehall department has responsibility for identifying annual themes, and may even have a list taking us right up to the turn of the century. The choice this year could be said to be a bold departure, away from something that everyone could understand and support, to something that was incomprehensible to many; and controversial to others.

I had been largely unaware of the details and aims of IT82 (as I shall call it for simplicity for the rest of this piece) until visiting "Which?" computer show in Birmingham when I picked up a "gloss" explaining what it was all about.

On reading this pamphlet and other published information it became clear that the project was essentially a PR exercise, since the budget allocated for IT82 specifically was some £600,000. Further reading confirmed that the emphasis will be mainly on informing and educating rather than actually doing.

The stated objectives of the programme seem ambitious – aiming to increase the awareness of just about everyone in the community, both the general public and the business sector.

Two basic questions arose in my mind:

1. Should we have an information technology year at all? and

2. Given that IT82 exists, will the message be spread too thinly to be effective, given the somewhat limited resources of the project?

Like others I have discussed this with, I was flattered that my own industry had been chosen – after all, we haven't had a Year of the Sheet Metal Industry or a Year of the Petroleum Products Processing Industry or anything like it before.

Some would say that it is much belated recognition of an entirely new industry, pointing out that we could have done with it during the seminal years of the industry in the 1960s when British computer and related firms were trying to establish their positions in world markets against a background of indifference to and/or ignorance of the industry shown by the various governments of the day.

> **'It is equivalent to roughly half a day's losses at British Steel'**

If the information "revolution" is likened to the industrial revolution then surely IT82 should be the equivalent of the Great Exhibition and other expositions much beloved by the Victorians which served both an educational role as well as being also a major showpiece for British products.

As for the second question, there is a danger of IT82 having only a limited impact with the funds allocated – fair enough, you might say, after all it is partly taxpayers' money that is being spent. Put in context, though, it is equivalent to roughly half a day's losses at British Steel – also taxpayers' money!

Admittedly there are other public financed projects such as the schools project which are associated with IT82, but they were on the drawing board anyway, and their impact is either longer term or more limited in scope.

To be effective I believe IT82 needs a lot of "free" help and goodwill from everyone within the industry; and indeed the organisers make a plea for help on the back of their explanatory leaflets. Without this help IT82 is in danger of becoming a non-event.

Finally let us hope that a successful IT82 doesn't result in extensive overtime being worked in Japan, otherwise it really will be the "year of the dog"!

Norman Revell

Useful addresses if you would like to help:
1. Mr Kenneth R. Barnes, project director, Information Technology Year, 19 Berkeley Row, London W1R 8DE.
2. Dol, Information Technology Division, Penn Bradley House, 32 Horseferry Road, London SW1P 2AG.

FOCUS

How to succeed – a guide to the insecure DP manager

YET again, it seems the DP manager is being warned to pay more attention to company affairs and less to computer industry technology affairs. The political climate in board rooms and management offices should be the stalking ground, rather than the DP marketplace.

This message will hardly come as a surprise to many DPMs who have realised that the company grapevine communication system is of more value than a string of datacom channels. Meeting the company chairman at the local golf club often has more impact on DPM career fortunes than meeting application and workload deadlines.

The new US report How to Succeed, states that of all managers the DP variety is at most risk. Statistics show that DP managers lose or change jobs every two-and-a-half years on average. Given this level of job vulnerability, the DPM heading towards the ski slopes at Aviemore or Vail, Colorado, may wonder whether the skids will be under him on his return to firm installation base.

Ranged against the DPM are not only the odds of computer technology performing according to plan, but company management envious of the power of the DPM, his prestige, budget and possibly age group.

The vulnerability hit-list is not, however, limited to the DPM. The data centre itself is threatened with heavy doses of computer crime, computer abuse and fraud. Computer security could become the major theme of the year – that is if it can get a look-in between the massive coverage and promotion being devoted to IT Year events.

Combating potential computer threats is well on the way to becoming a growth industry, especially as there is now a possibility of government legislation. Being Prepared is a slogan which serves the DPM well, whether it is an emergency list of phone numbers, a list of excuses for non-delivery of work-schedules, back-up procedures or reserve supplies of late-night snacks.

The DPM should therefore give as much time and attention to protecting his installation as to protecting the job. The world of computer security covers all activities, ranging from team monitoring and motivation, data input and output procedures and such basic security policies as the introduction of installation door locks, passwords and user system entry validation.

One way of responding to the challenge could be by attending an industry-based forum in March called Computer Audit Control and Security. Among the computing bodies supporting the venture are the IDPM, NCC and BCS, which certainly grants an industry seal of approval to the organiser, the Institute of Internal Auditors.

Among the noted speakers are representatives of the government, banks and audit companies. Just about the only security and audit topics not covered in the course of the three-day sessions would be costs – an unfortunate omission for the practical DP executive who may well be handed the responsibility of incorporating installation security procedures.

The days when installation security is limited to ensuring operators do not spill their coffee on the CPU, that disc packs are not used to prop open the computer room door and that the annual installation calendar is not Snoopy cartoons produced in kept to a reasonable quota, can be numbered.

First on the installation curriculum list should be the unscheduled tours of company executives, keen to show their lunchtime pizza around the company computer works. Next is a series of computer appreciation courses for the company auditing and accounting team, especially where the system has moved on several generations from punch cards to operations.

Meanwhile, the first company which offers advice on keeping after job and installation security could expect a sell-out on day one.

Alan Simpson

10 YEARS AGO

From Computer Weekly of February 17, 1972

A REPORT by the Department of Health and Social Security and management consultant McKinsey said that the National Health Service had the chance to lead the world in the use of computers to improve health services – all that was needed was "concerted and effective developments" . . . Most computers users interviewed by Computer Weekly showed confidence that they would cope with the forthcoming round of power cuts . . . The BBC added a second ICL 1904A worth about £500,000 to its Sulgrave House computer centre in London . . . The Post Office and Essex University were developing a high level language for use in store-program-controlled telecommunications work, being predicted that telephone exchanges of the future would become increasingly computer-controlled . . . Hewlett-Packard launched the Model 28, a desktop calculator that could solve simultaneous equations with 9 unknowns in its 429 word memory . . . The First National City Bank of New York, popularly known as Citibank, bought Computer Projects Ltd, CPL, the bureau subsidiary of Associated Newspapers.

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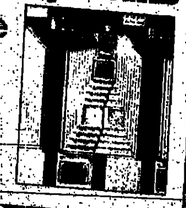


DOWNTIME

When violence to the system is justified

COMPUTERS are having profound psychological effects on people who work on them, says Sanford Weiner, a professor at St Josephs University, Philadelphia.

Some, he says, get hooked on computers and become cyberphiliacs. We all know about the programmer who cannot stop fiddling with the keys of his VDU.

Others develop a fear of computers and become cyberphobiacs. These unfortunate souls develop symptoms akin to those of other phobias like claustrophobia, such as nausea and high blood pressure.

Some cyberphobiacs simply change jobs, but when computing is their livelihood, they cannot do this. They may then turn to violence.

There was a sad case in West Germany recently of a 29-year-old insurance salesman who attacked the computer he was working on with a chair. The computer had broken down five times on one day.

But even Chad thinks he went a bit far when he finally set fire to the computer in a fit of fury after having smashed its bytes to bits.

Still, never mind. The man was acquitted, the judge decreeing that his patience had been tested beyond all reasonable bounds.

It clearly had. But was his limit of patience a normal one? If I had a pound in the bank for every time a computer has crashed on me five times in one day, my name would not be Chad.

An interesting test case, though. If only the value judgment could be applied to dealing with people, I would have an iron curtain defence next time I take the stick to my wife.

Time sharing in a very friendly environment

THERE is a law which says that the rate of issue of a tube of toothpaste is directly proportional to the amount remaining in the tube. In an ideal world, this would mean that a tube of paste (or indeed any tube of anything) would last for ever.

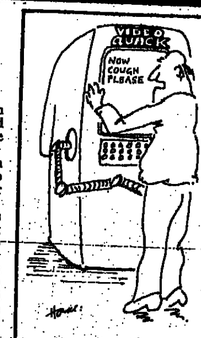
But we do not inhabit an ideal world, and most of us dispense with our tubes before they are empty.

However an old friend of mine can at least go some way to providing experimental proof of the law which says that a combination of stools of public opinion, some believe they never make a mistake, while others hold them responsible for all hiccups.

This dichotomy is nicely illustrated by two quotes from BBC sports programmes:

1. David Vine commenting on the World Ski Championships: "This man Stenmark has been like a computer – he never makes a mistake."

2. The following night, Alan Weeks commentating on the European skating championships in Lyon: "Due to the error by a computer the Manchester couple Barker and Slater have moved from fourth to fifth place."



The people robots cannot replace

A SLENDER flexible robot that will probe inside people's organs to perform delicate surgery is in the pipeline from Japan. Or so I read recently.

I find the claim somewhat suspect to swallow. No doubt a marvel of technology will be found for way to help surgeons do their work with less risk to patients and, we think, are the people responsible for their maintenance needs to double.

But to imply that we have something to replace the surgeon is not to be taken seriously.

I prefer anything recent piece of Japanese news which tells of robots writing "Happy Birthday" with icing on sponge cakes.

Chad

Computers can't win!

COMPUTERS fall between two stools of public opinion: some believe they never make a mistake, while others hold them responsible for all hiccups.

This dichotomy is nicely illustrated by two quotes from BBC sports programmes:

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Sporting chance

MUCH against my better judgment, I find myself a member of the Computer Weekly team competing in this year's Computasters. My main contribution to the team's undoubted superiority is the arduous and vital task of selecting a suitable name for our gallant competitors.

Early titles rejected included "The Superhacks" (too colloquial), "Computer Weekly" (too near the physical truth), "The Buckton" (too inflexible), and "Nottingham Forest FC" (already in use). What I am really looking for is a punchy brace of words containing the message "A team of over-confident, out-of-condition, sedentary workers who believe they can overcome the cream of Europe's computer industry".

Chad

ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, February 18, 1982

Privacy shock

IT has been a busy time on the privacy scene. Following trumpetings in the Sun about disclosures of an MP's private data, Home Office minister Timothy Raison announced some radical changes to the government's approach. He indicated no less commitment to the idea of data protection but raised many questions about the efficacy of controls.

The news from the Sun was exceedingly stale. It revealed that it is possible to bribe police and government officers to part with information. The claim that the Prime Minister was provoked into action by the story is equally deluded. She said what she has said all along: that legislation might be introduced in the next session of Parliament, that is, possibly a year from now.

Hardly a lightning response. What is far more important is the lack of any word from her about action that she could take here and now, namely, tightening up the security of public sector files by executive order.

The disclosures about Mr Michael Meacher which provoked Mrs Thatcher's "distaste" basically come from government files. Ministers need no legislation to direct their officials to implement adequate security systems. In fact, they should be doing so already. Either the PM is genuinely not conscious of this or she is hiding behind the legislative process as an excuse for procrastination.

Of course, it remains an open question as to how controls, whether legislative or administrative, could effectively obstruct officials who are prepared to be bought. As Chief Constable Philip Knights has said, "there will always be the bent copper," and a system from which there can be no leak would probably be unusable for its purpose. Nevertheless, there are security measures that could be taken, such as tracing systems, that record every access to every piece of information for a certain period of time.

These need to be considered urgently, and as the government itself seems uninterested in the subject, a special security commission for public sector files could well be set up to look into the question in detail.

□ □ □ □

Raison's remarks were of much greater moment than the stories in the Press. He delivered to our industry a major bombshell in the form of the government's conclusion that different codes of practice for system operators would be impracticable. His reasons were that it would be too often unclear what code of practice should apply to what case, and within each category there would be too many variations to make a single code workable. He added that formulating the codes and keeping them up-to-date with changes in technology would be expensive and time-consuming.

Certainly, doubts have often been voiced hitherto about the difficulty of sorting out overlapping codes, especially when a breach of a code can constitute an offence. Nevertheless, the idea of codes has become so firmly established that many of those involved must feel now that they are being sent back to square one. The National Computing Centre has spent a great deal of time formulating draft codes and trying to decide whether they are practicable. The rethinking that is now going to be necessary causes yet more delay to the eventual realisation of UK data protection.

Raison's vision of how the system would work without codes is woolly. He says that all operators would be obliged to respect the Younger Report principles on relevance, accuracy, security and the like, which would be enshrined in a Data Protection Act. But what about such issues as subject access to data, i.e. the right to see one's own file, which most people agree is appropriate in some causes and not in others? In the absence of codes of practice, system operators will be in the dark.

One delicate note came out of Raison's talk that is guaranteed to disturb the civil liberties lobby: he suggests that certain categories of files, such as those to do with law enforcement and security, should be exempted from registration altogether. Thus not only would there be no subject access but the public would not even know the files existed. In that case, if the registrar can do nothing about such files there is no need to bother with making him independent!

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by P. J. Morley of Sheffield, who wins £5.

Being a 76-megabyte computer, it can spew out its contents in any one of dozens of different sorts of order. It can tell you which habitats are open to what threats; or what threatened species occur in what countries; it could probably tell you the middle name of the prime minister who is doing least worldwide for his plant life.

Radio Times

LETTERS

Few competitors

THERE is an excellent reason for the "low market penetration" by competitors to ICL's TPO and TPMS monitors for VME/B users brought to our attention by Mr Bryan Parlett (Letters, February 4). As far as we at this company are aware, no-one has yet produced a competitive product.

ICL does not offer end user support for the low-level interfaces used by TPO and TPMS, so that any competitive product would be very seriously at risk from possible ICL software upgrades. Customers would then be forced to stay with obsolete, possibly unsupported operating systems until their teleprocessing monitor supplier was able to catch up.

In any case, as Mr Parlett points out, ICL's monitors are really quite good and in our opinion to try to better them at what they are trying to do would be a futile exercise.

The companies with an investment in TP monitors for ICL's 1900 series architecture are naturally interested in the upgrade market and of two known competitors, one has already announced a product which will enable users to change over with a minimum of recompilation, etc. Since all the monitoring, routeing and recovery facilities are already provided by ICL, the VME version of this product reflects its status as a mere conversion aid by sporting a price tag considerably less than that for the original 1900 series version.

The other company has, we believe, a product which will be released imminently and we await its announcement with bated breath.

Although we agree in the main with Mr Parlett's conclusions, and in particular with his support for ICL's VME/B, we believe that a VME/B TP system requires a great deal of careful planning if the TP environment is to be soundly constructed and if it is to be easily extended and enhanced.

We believe that our product, Gresham TP2900, is the only one addressing this area of applications supportive software, and the interest being shown in the product by a wide range of users, some of whom are claiming 40% savings in development costs, seems to imply that TPO/TPMS is not the complete answer to simple TP systems however effective it may be when properly implemented.

R. LEWIS
Gresham Computer Services
Southampton.

No rubbish for unions

YOUR short article in the Lamsac Refuse Collection Computer Model has just been brought to my attention (Downtime, January 21).

I am surprised that you can make these comments as there is no way that any reading of published Lamsac literature on the Ross Model could justify the interpretations you make. If you are quoting from any other document then both you and this other unacknowledged source are incorrect.

Certainly, using Ross, the trade unions (as well as management) do receive detailed printouts of all the data used in the computer process, whether this data refers to premises or to times. This reflects a commitment on the part of Lamsac to ensure that *all* background information, required during the consultation/negotiation processes is openly available.

Certainly, also, there is a version of Ross, called Ross Audit, which is available to enable authorities to obtain – without any survey work – an estimate on the effectiveness of their refuse collection service. But this simplified version is simplified only to the extent that it accepts estimated figures on some factors rather than definitive data derived from a survey "on the ground" in an authority.

Any suggestion that Ross Audit was designed and made available because of difficulties of comprehension by anyone or that this Audit model uses a different set of routines for the calculation of workload is totally false and I ask that you publish this letter to put right any incorrect impressions.

May I say, however, that I hope Downtime will continue to take a necessarily irreverent look at the computer world, but that this examination should in future remain within limits of accuracy.

S. R. BARNES

Lamsac
London SE1.

Replacing 160-col printers

I WOULD like to know whether other ICL users have problems arising from the plan to phase out printers with 160 printing positions and if so, whether they have found a suitable solution.

With 160 pp printers printing can be speeded up by printing forms two up in situations where 132 pp printers could not cope. As a result we now have a large number of programs using stationery which would not suit 132 pp printers.

To redesign and re-program is a very large task and will result in slower printing. I believe that some organisations with large print outputs use offline printers which will continue to be available with 160 pp. This option, however, seems much less suitable for the smaller user who would have to purchase at least one online printer in addition to offline printers.

PETE WILSON

Hartley, Wilts.

Liveware File *by Don*

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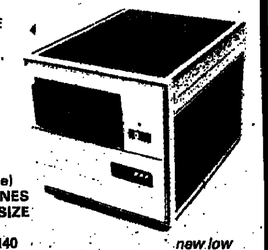

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One step nearer to a non-stop system with inbuilt resilience

by Philip Hunter

SINCE the siege of Troy, man – and woman – has dreamed of making a perpetual motion machine. Such a dream is now known to be of the piped variety, and more recently that same homo sapiens has indulged itself in a new fantasy: the failsafe computer.

Of course there is no such thing. Until 1976 nobody had even tried to make one. Then came along a company called Tandem with its now world-renowned NonStop system. This was launched in 1976, and for four years it ran the market unopposed.

The Tandem approach involves duplicated but closely coupled hardware, based on a common set of interfaces. Its NonStop processors are 16-bit minis simulated by 32-bit ECL microcomputers.

"For added realism, we've programmed in random lightning strikes."

Tandem would never claim its NonStop to be immune to failure. But it has established a reputation for reliability and eliminated a number of common hardware failures.

Other companies have brought out multiprocessing systems for extra number crunch, but without resilience. Indeed, Digital Equipment Corp has just announced what it calls an asymmetric multiprocessor system constructed from two VAX 11/780s closely coupled with shared operating system. But again, this is not a resilient system.

The first UK company and second in the world really to tread on Tandem's toes is Combined Technology Ltd, CTL, based in Hemel Hempstead, which released its resilient system based on the Series 8000 computers in December 1980.

The approach is somewhat different from Tandem's. Firstly CTL has made it easy for existing Series 8000 users to buy resilience without changing any software.

Resilience can be had in stages, whereas with Tandem or DEC, it is all or nothing.

CTL usually calls its system Momentum, but sometimes refers to it in passing as a nonstop system. The spelling of the word nonstop is significant. Tandem calls its system NonStop – a proper noun with a capital S in the middle. But two such common words as "non" and "stop" cannot be concatenated and reserved as a trade name, so CTL is quite at liberty to describe its system as nonstop too.

But why not be different? The answer is that CTL has no desire to set itself aside from Tandem. In this age of lookalikes, there is instead some desire to climb on Tandem's back and look over its shoulder.

This, CTL has already done with the development of the Momentum system and there is no attempt to hide that fact.

"We will be delighted if we do half as well as they do," admits CTL's head of product development Chris Pick. There is no Tandem-knocking at CTL.

CTL does, however, claim to offer greater resilience than Tandem in the case of system software failure. "This type of failure occurs more often than hardware failure," says Pick, claiming that Momentum's fast recovery software will often overcome a system failure.

"Recovery time is typically two or three minutes," he says.

But Tandem's NonStop system may be more reliable in the event of hardware component failures, he concedes.

CTL offers reliance in three stages. The first is the fast recovery option capable of returning a database to a clean and consistent state. This will retry a failed program several times before either skipping, if this is feasible, or aborting the whole run.

PICK . . . Extra hardware to minimise failure causes more failures through breakdown on communication.

The second phase is a mirror disc option "to avoid the catastrophic disc failure nightmare", in the words of products marketing manager Tony Smith.

Full resilience is achieved by linking two processors on different power supplies. There is just one link joining the two processors. But shouldn't there be two, in this world of symmetry espoused by Tandem and CTL?

"No, because we might as well treat link failure as a single system failure," says Pick.

"If it fails, computing power is halved, just as if one of the processors had failed."

CTL did consider having two links, but dismissed the idea as not worthwhile. "The link is very reliable, and unlikely to fail anyway," says Pick.

"Sometimes extra hardware to minimise failure actually causes more failures through breakdown of communication," he says. Surely not a little dig at Tandem's duplicated hardware?

Momentum has two processors linked together, but each processor runs programs independently of the other during normal usage. In fact, the user sitting at a terminal will usually be unaware which processor his or her program is running on.

The two processors therefore access the same discs so that after a failure, there is just one processor running as in a normal system.

When in full flight, there is almost twice as much processing power available as when just one Series 8000 computer is being used.

Almost, but not quite. One does not get anything for nothing, and software associated with the link to handle failure of one or other processor inevitably takes its toll.

The link passes information between the machines on locking and unlocking of discs, which is necessary when the two processors want simultaneous access to one disc.

This exchange posed an interesting little problem to the CTL programmers when writing the software for the fast recovery option. The solution is simple, yet the problem had one of CTL's analysts sweating for weeks.

The problem arises when a record is updated twice in quick succession by two different programs. When a crash occurs, the recovery system has to know what state this record is in for the database to be placed in a condition from which a restart can be made.

To do this, a program has a checkpoint. If a crash occurs before the checkpoint is reached, the record is returned to the state it was in before the program did any update. But if the checkpoint is passed, the record is kept in its new updated state, so the program will not have to be rerun after recovery.

A problem arises when one program has updated the record, but is still running and not yet checked out, and then the second program updates the record and completes its check-out.

Normally the system would return the record to the state before the first program got its hands on it. But the second program has meanwhile updated the record and checked out, so there is no memory of what state the record was in when the second program accessed it.

This contradiction was simply resolved by keeping the record locked until the first program had checked out. Then there is always only one program's updates to consider when a crash occurs.

Another problem is that of having one system take over from another when a crash occurs. Here full automation has not been achieved, and when one processor fails, the operator can decide whether to allow all users a reduced service, or offer high priority users a full service.

The link at present merely indicates which system is talking, and CTL expects to incorporate a second link between processors in future systems to give fully automated resilience.

'Trespassers' enjoy breaching security

WHEN a former colleague of mine was sacked from his analyst job at an ailing software house, malicious gossip would have it that he was guilty of industrial espionage. He had been caught several times in the smallest hours of the morning with his nose deep into personnel files, and after a couple of warnings he was told to go.

Management was glad to be shot of a man whose work had been a cause of concern for some time anyway. He was one of a not uncommon breed which can sound off with great authority about anything under the sun, but never seems to get anything done.

Nevertheless it was, I think, hyperbole to accuse of espionage a man who simply possessed an insatiable lust for information on other people's private affairs.

As another colleague put it: "He just loved to breach security."

Such cases are by no means uncommon in the US, where most variations from the accepted norm of behaviour first win official recognition.

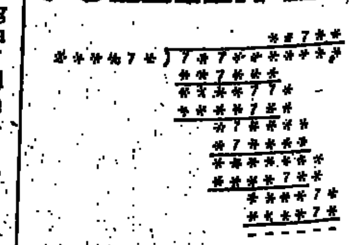
An article in the Canadian Gazette quotes Donn Parker, an author and computer crimes specialist at the Stanford Research Institute in California, as saying that computer pranking is part of a serious international problem.

These people are technological trespassers, he says. "They often do it just for the sheer joy of destruction."

He was referring in particular to three men who, when charged with rummaging through confidential computer records containing information that could lead to devastation of a telephone company's computer system, said they were just doing it for kicks.

The article draws attention to the ease of entry into some systems by simply guessing at passwords and codes. Companies, it seems, display limited imagination when it comes to designing them.

PUZZLER



WHEN this skeletal division-sum problem was first published, in 1906, the author W. Berwick gave only seven of the 7s as clues. The retro-analysis called for was quite substantial, so I have lightened the burden somewhat by inserting all thirteen 7s which occur. See page 52 for the complete sum.

Still squeezing data through the old-fashioned way? Concentrate. It's cheaper.

With over 25,000 installed, MICOM's original Micro800 was the world's most popular data concentrator. But the new Micro800/2 does more for less. It allows up to 16 terminals (synchronous and asynchronous) to share a single telephone line. *Yet it will pay for itself in configurations supporting only one CRT and a printer*—automatically correcting transmission errors at the same time.

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OP SPOT

How safe is your fire safe?

by Andrew Thomas

IT'S all very well spending thousands of pounds on protecting your hardware from fires or other disasters, and arranging sophisticated standby plans with other installations, but without safeguarding the most precious resource, the actual data, you are wasting your money.

In an ideal world, the best way to achieve data resilience would be to store copies of all company-critical files in a secure environment several miles away from the installation.

While this service is offered by third-party companies (at a cost), it suffers the drawback of the amount of time it takes to recover a tape or disc from the secure store in the event of the original failing.

Taking a third copy of the file, to be kept on-site, is one way out, but if a large number of files is involved, the cost in media and space to store them may prove prohibitive.

Probably the best, and most common, compromise is to install fire-resistant safes on-site. The copies are secure from damage, yet instantly available if required.

There are many different types of data safe on the market, and, superficially, they all appear similar. So how do you know which is best?

One manufacturer, who shall remain nameless, sells a document safe at a price of £750, on which he is making a profit. By installing a laminated wood liner costing £50-£75, he markets it as a "fire safe" (my quotes) at £1,300.

Whether this is either a suitable method of construction, or a fair profit margin, I leave to your judgment to decide.

In West Germany, Switzerland and Sweden, there are stringent tests for fire-resistant cabinets. The UK had a test until 1980, when it was suddenly withdrawn.

The British test was carried out by the Fire Office's Committee (FOC), and was the most severe of any of the European standards. The severity of the test is illustrated by the fact that in the eight years the test was in existence, only one manufacturer's safe actually passed.

In West Germany, every model of safe offered for sale must carry a VDMA approved sticker. Every cabinet marketed as a fire safe must have been subjected to fire testing, and the VDMA can take any production model for examination to ensure that the safes on the market are built to the same specification as the one originally tested.

Should a production safe fail the test, approval is withdrawn from all safes of the same model.

Thus the manufacturers are encouraged to maintain standards, and the customers are assured of protection. Without such spot checks, the manufacturer can build production safes, which bear a superficial resemblance to the prototype, out of inflammable materials if he should so desire.

How are the tests carried out?

Most fires can be described as causing a fast increase in temperature followed by a slow fall, reflecting what happens as a fire is brought under control, but the building still retains heat.

The fire safe could well sit in the remains of the building for several days, waiting to be dug out.

Thus it is important to simulate this "soak" period by hosing down the red-hot safe with high-pressure water jets, and dropping it to create the effect of a building falling on it.

The FOC 2½-hour test was based on the official European test as defined by Comité Européen des Assurances (CEA):

1. The safe under test is placed in a furnace and heated in accordance with the standard time /temperature curve for a period of 90 minutes, by which time the temperature will have reached 1,000 degrees Centigrade;
2. The temperature is then progressively reduced to 500 degrees C. Having been under heat for 2½ hours, the cabinet is left in the furnace until the internal temperature of the safe begins to drop showing that the maximum temperature has been passed;
3. The internal temperature must not at any time exceed 65 degrees C, and the humidity level must remain below 85%. Data recorded on magnetic media inside the safe must be proved to be usable.

The drop test is carried out as follows:

1. The cabinet is heated for 1½ hours, and then dropped four metres onto its most vulnerable point, the front edge, while it is still hot;
2. It is replaced in the furnace for 30 minutes, and doused with cold water under pressure. The magnetic media must still be readable.

It is unlikely that any fire safe should be subjected to a more stringent test, but most manufacturers who carry out their own tests limit them to one hour. It is significant that in this period, the maximum temperature reached by the furnace cannot be higher than 925 degrees C.

Those manufacturers conducting their own tests can, and unually do, see how long the temperature and humidity remain below the accepted limits, and then cut off the graph just before these prameters increase beyond them.

This ruse is usually carried out to give the impression that a safe with a one-hour rating is suitable for two or more hours. Beware of time temperature graphs which show no downward trend before the time axis stops – these safes are adequate for the time shown on the graph, but you must rush into the blazing building and remove the media before the internal environment degenerates to the point of destroying the data.

The time temperature curve *must* show a definite downward trend, not just a levelling off. As an example, one safe was tested, giving internal readings of 61 degrees and 78% humidity after one hour under heat. But after a 60-minute "cooling" period, these had increased to 68 degrees and 90% humidity – well outside the limits.

The manufacturer's literature only showed the graph up to the point where temperature and humidity increased beyond the limits. Is this to be construed as deliberately misleading, or as a genuine oversight?

So why did the FOC withdraw the test in 1980? The main reason given was that there were "serious reservations" because of the "unacceptable variations" that could take place between different testing sites.

Hugh Johnson, product manager of Rosengrens, the only company to have a fire safe pass the FOC test, thinks that the prospective buyer of a fire safe is at risk, because there is no effective control on the manufacturers of fire-resistant cabinets.

Johnson says: "Surely an official test for fire safes, even one with variations between the various testing sites, is more desirable from the user's point of view than no test at all?"

Why is it that West Germany, Switzerland and Sweden all consider it necessary to have their own standards, and Britain, which once had the most stringent testing in the EEC, now has none?

JOHNSON . . . "Surely a test with variations is better than none at all?"

SOFTWARE MONTH

COMPUTER WEEKLY'S SOFTWARE SUPPLEMENT

Computer Weekly was the first general computer journal to give software its own space when Software File was introduced for weekly news reports. Now the time has come to expand the coverage further.

Edited by our Software Editor Claire Gooding, Software Month will devote its whole coverage to one subject each month. The topics are listed below.

But included each month will be a news round-up, highlighting important events of the past month, and a column by consultant David Ferris on the increasingly important business side of software and the companies which market it.

PROGRAMME FOR 1982

February 25: Annual software review
March 18: Networking software
April 22: Database
May 13: Financial and project planning
June 10: DEC systems
July 15: Payroll packages
August 12: Integrated Office software
September 9: Program productivity – program generators and high-level languages
October 7: Word processing
November 4: City software
December 2: CAD/CAM and scientific software

● For advertising within Software Month contact Gordon Bradley, 01-661 3500 ext 3572.

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PEOPLE

Peachtree names managing director

NEWLY-FORMED Peachtree Software International, part of MSA, has named a new managing director. John Hale joined MSA in 1978 as managing director and founder of the UK subsidiary. He left a year later to form his own company, Hale Computer Services, to develop and market software for minicomputers.

Before joining MSA, Hale was UK general manager of Cincom, a post he held for five years. His computing career started in 1962 when he joined ICT (later ICL) in a customer support role. By the time he left in 1969 he was technical manager of ICL's Far East marketing division in Singapore and Hong Kong.

Between 1969 and 1973, when he joined Cincom, Hale worked in DP management in Germany and Switzerland.

Charles Chang has left ICL to join Butler Cox and Partners as a senior consultant. His career in the computer industry started in 1964 when he joined IBM in New York. For the past 11 years he has been with ICL, which he joined to manage its System-4 DBMS project in London, in a series of posts.

Eric Morgan has transferred from ICL to Baric Computing Services as national sales manager. He has been with the ICL group for 28 years. He joined in sales support, subsequently becoming support manager. From 1961 he held various sales managerial positions, latterly sales manager for Southern England.

Dave Parrick has joined Newbury Laboratories' newly-formed micro systems division as marketing support specialist. He previously held a similar position with Telecomputing. Parrick joins the team responsible for micro systems, software and engineering support, provided through five service centres in the UK.

Boss for Verbatim Ireland

PATRICK ALLEN is to replace Greg Lynch as managing director of Verbatim Raheen/Ireland. Lynch set up the Verbatim plant in Limerick three years ago.

Allen joined Verbatim in Sunnyvale, California, in 1979 as product line operations manager.

In 1968 he joined NCR in Dundee as systems engineer, going on to become European hardware specialist based in Brussels. In 1973 he returned to Ireland to become operations manager for Measurex Ireland.

Two years later he moved to Measurex Corp in Cupertino, California, as corporate quality assurance manager. In 1977 he went to Intel as quality assurance manager.

Three join the board

COUNTING HOUSE Computer Systems, part of the Cope Allman Group, has promoted three senior executives to the board. This follows the appointment last year of Bob Whitfield as managing director.

Joining the board are Ken Davies, Roger Staines and Graham Townend. Davies joined Counting House as product manager, technical systems, last year, after five years with Konsberg Data Systems.

Staines joined the company as commercial applications manager in 1981. He had previously worked for Ford Motor Company for 11 years.

Townend is the company's financial controller. He went to Counting House last year after two years as financial controller of the Yellow Pages activities of Thomson Directories.

■ **Bob Pennington, Neil Spalding, Stephen Jones** and **Mark Roberts** are all newcomers to Maidenhead-based Micro Scope. Pennington, formerly a design programmer with Whitbread, becomes a project leader. Spalding joins as a senior analyst programmer, having worked as a programmer with LCA Computer Services, and Jones, also a former LCA programmer, becomes a programmer for Micro Scope. Roberts has been appointed firmware designer and programmer and was formerly a programmer with A-Z Computer Services.

■ **Robin Allison** has joined Sony's communications systems division as product manager for word processors. He was previously with Wordplex, where he was systems support manager. **Richard Holt**, formerly viewdata sales and marketing manager with STC, joins Sony as product manager for viewdata. **Mohsen Noohi** has been appointed assistant product manager with responsibility for dictation machines. He joined the company in 1979 as a trainee.

■ **Martin Francis** has been appointed director of UK and Northern European operations at LTX. He was previously with ICL for 15 years where he held senior management positions in the sales and manufacturing groups. **Iain Woolley** has been appointed customer service director at the company. He spent a long period with ICL, serving most recently as customer service manager in Malaysia.

■ **Margaret King** has won Tangent Computer Services' award for outstanding effort in achieving sales revenues of £500,000 during 1980/81.

■ **Chris Gent** has been appointed product marketing manager at Baric Computing Services. He has previously held positions in customer service operations and marketing in the services industry.

■ **Gillian Furniss** has been appointed senior support analyst at Prime's Feltham office. She was previously with ICL for two years, working on the development of small systems. Also joining the company as a senior support analyst is **Julian Borys**, who will be based at Prime's City of London office. He was formerly with Omnidata as software support programmer.

■ **Alan Opgaard** has been appointed senior sales executive to cover the Scottish market for Gould SAL Computer Systems division. He was formerly a sales engineer with Hewlett-Packard.

■ **Robert Fisher** has been appointed dealer sales manager for Peachtree Software International. He was previously technical support manager for MSA, which he joined in 1978.

■ **Mark Whittle** has been appointed financial controller at Megabyte, the Leeds-based turnkey computer systems supplier. He was previously a management accountant at Shepherd Engineering Services.

■ **Brian Bayham** has been appointed senior sales executive for Army sales at Ferranti Computer Systems. He spent 32 years in the Army, retiring as a lieutenant-colonel. Before joining Ferranti he worked as military sales manager at Marconi Avionics.

MD for AES Euro base

DAISY Systems Holland, subsidiary of AES Data, has appointed a new managing director. He is Jan Cornelisse, former managing director of Prime Computer Benelux BV.

Daisy Systems Holland is an OEM supplier of printer products. It was acquired by AES Data in June last year, and is AES' first hardware manufacturing base in Europe.

■ **Keith Baker** has joined Rediffusion Computers as a systems analyst. He was previously with Prime Computer as a systems engineer.

CONFERENCES

■ THE UK APL User Group is next to meet on March 19 at the Reed Lecture Theatre, Imperial College of Science and Technology, in South Kensington, London. Theme of the meeting is Flavours of APL, and it will look at differences in environment provided by APL suppliers, particularly in terms of file-systems. These differences, says the group, are now so great that Sharp APL, IBM VS/APL, ICL/APL, etc users may have difficulty communicating with one another. Organiser is Tony Moore, who can be contacted on Waltham Cross 32222, ext 3488.

■ THE seventh International ALLC (Association for Literary and Linguistic Computing) symposium on Computers in Literary and Linguistic Research will be held in Pisa, Italy from June 7-11. Themes are theories, methods, problems and applications of literary and linguistic computing. Panel discussions and workshops will be held and papers are expected to include lexical databases and computerised dictionaries, software and hardware for literary and linguistic computing, and semantic analysis and natural language processing. Details from Prof Antonio Zampolli, VII ALLC Syposium Istituto di Lingistica Compuazionale del CNR, Via della Faggiola, 32 – 56100 Pis, Italy. Tel: (050) 502082.

■ THE fourth annual computer education open day, Computaday, takes place on April 2 at the Central Library, High Street, Bromley, Kent. Doors open at 10.30. Main exhibitors will be representatives of the pupils and staff of Bromley's 25 secondary schools. The exhibition is seen as an opportunity for the schools to demonstrate their continued progress in computer education and computer assisted learning. Themes are computers in primary education, business studies and remedial education. During the open day prizes will be presented to the winners of the Bromley schools computer competition.

Details from Mrs J. Buckley, Ravens Wood School, Bromley. Tel: Farnborough 56050.

DIARY

FEBRUARY 18

Computer graphics for BBC TV. BCS Central London branch. Charing Cross Hotel, The Strand, London. 6.00.

The social effects of the technological revolution, by Dr Colin Hicks of the DoI. BCS North West London branch, arranged by the Management Institutions Consortium. Harrow College of Education, Northwick Park. 6.30.

FEBRUARY 24

Info 82. IDPM North-Western branch. Makro Training Centre, Emerson Road, Eccles. 6.30.

MARCH 2

Voice response and other specialist terminal applications. IDPM Birmingham branch. Wheatsheaf Hotel, Coventry Road, Sheldon, Birmingham. 7.30.

MARCH 3

Liberalised British telecomms. IDPM Central London branch. Altergo Software, Imperial House, 15-19 Kingsway, London. 6.00.

Thinking about the future. IDPM Scottish branch. Edinburgh University, Students Association, 60, The Pleasance. 7.30.

MARCH 9

Power station protection systems. IEETE. SSEB, 75 Waterloo Street, Glasgow. 7.00.

Liquid heating systems. IEETE. Room SG28, University of Aston, Birmingham. 7.30.

An evening with the robots, talk and demonstration. BCS Coventry branch. Physics lecture theatre, Warwick University, Coventry. 7.30.

Disaster recovery. BCS Croydon branch. Maple Room, Fairfield Halls, Croydon. 7.15.

Use of computers in lexicography. BCS Harlow branch. Longmans, Burnt Mill, Harlow. Details from S. Robbins on 01-600 5666 ext 3508.

A rapid application development system. BCS West Herts branch. The Culpin Room, The Pavilion, Hemel Hempstead. 7.45. Details from Gary Freeman on (0234) 65121.

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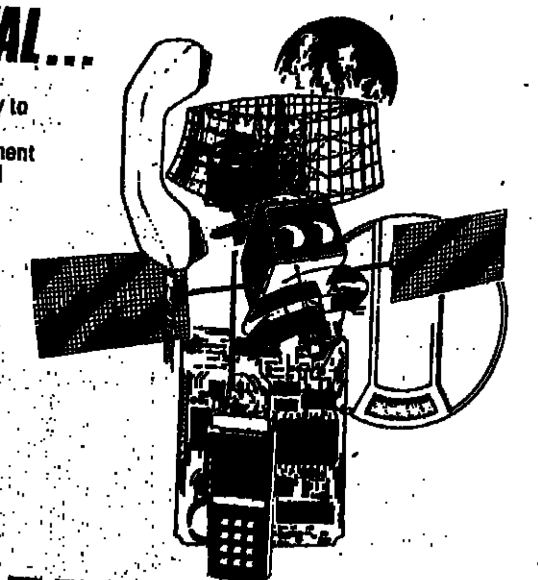

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MICROSYSTEMS'82

A four-page preview of next week's Computer Weekly exhibition for systems builders and industrial applications users

Hardware on the move in industrial control

by Martin Banks

THOUGH the popular conception of a robot is still of something not totally unakin to C3PO in Star Wars, a growing number of industrialists in this country have a much clearer idea of what the machines are about, and what they look like: rather ugly and somewhat limited.

They are also generally rather expensive items, in the same way that early computers were rather expensive — and perhaps a trifle limited.

As with those early computers, microelectronics is likely to change all that in the robotics field. Indeed, the scope is now considerable for new robotic control systems that could be pieced together like Lego bricks. The degree of knowledge and skill required to use the bricks would be the only thing that might be limited, that and probably the price of the system.

Recent advances in microelectronics, when applied to areas of the robotic and industrial control marketplace, indicate that the technology could soon be making some major changes to the way products are considered.

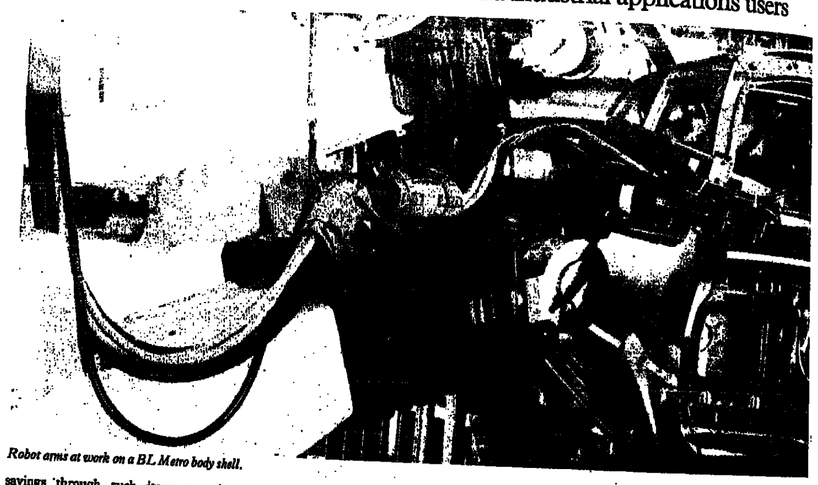
But all this sounds as though the application of microelectronics to these areas is a new idea, when in fact industrial control was probably its first real marketplace.

To an extent, however, it is a coming back, for developments outside the industrial arena have influenced the way that systems are now designed.

Firstly, a little historical perspective: When the calculator begat the first microprocessors from Intel and Texas Instruments (which also claims to have invented it, despite the awards to Intel's Ted Hoff) there were few around who even perceived that a tiger had been born, let alone that it was being held by the tail.

The early 4-bit processors were, by any stretch of the imagination, pretty dumb. There was really not that much they could tackle effectively. They were also programmable only in machine code, which meant that the programmer had to be pretty skilled just to get any application running well. In the early days, even assembly language was often just a fond dream for the future.

The first applications, therefore, were themselves fairly simple. Small control sequences in industry were an obvious target, especially where the device's ability to be re-programmed brought cost savings through such items as more efficient system design or engineering.



Robot arms at work on a BL Metro body shell.

As the microprocessors improved, and then grew from 4-bit to 8-bit word lengths, so the size of industrial application also grew.

It was the availability of 8-bit processors that set things moving in another direction which was to have an effect on the future of robotics system design. The direction was to the hobbyist, and all that followed after.

The story is well known. A US magazine published the details of a new kit computer it had heard about. It was the MITS Altair machine, and this prompted two interesting lines of development.

One was the S-100 bus structure, a simple and not very elegant approach to putting lots of different boards together in one box so that they would work together.

This bus structure, for all its technical inelegance, became very popular, for it greatly simplified the problems of system design, configuration and implementation. It is a route that is the immediate ancestor of a whole genre of single-board computer systems from all the leading microelectronics manufacturers.

The other line of development was, as such, the entirely new market that the Altair sired. The personal computer in all its various guises has become a huge success both for the makers, such as Apple and Tandy, and the users who have suddenly been given access to all this computing power at so little cost.

Certainly the cost factor has been crucial in the development of the biggest sector of that market: small businesses. Also crucial, and to some extent synergistic to the business market, has been the development of high level languages for the systems. To have tried writing business-oriented applications software in machine code or assembler was beyond all practical reason. The appearance of interpreters and compilers for Basic, Fortran, Cobol and Pascal has done much to make the real use of these systems possible.

There has been support for this trend with the parallel development of operating systems such as CP/M.

At the same time as this trend has been developing in software, microelectronics has been improving. Microprocessors have become more powerful, memory devices have increased their storage capacities, specialised controller circuits and other functionally dedicated devices have appeared, and gate array technology has developed to the point where the special chips that often form the mortar that hold systems together can now be produced easily and relatively cheaply.

Taken with the software developments, the improving hardware has greatly increased the flexibility of system design as well as its overall performance. The two are closely related, for the flexibility is primarily a direct function of the hardware's performance.

For example, the new families of microprocessor from companies such as Intel and Motorola offering 16-bit word lengths and megabit-plus memory addressing capabilities, greatly increase a system's capability of running good software.

"Good" in this context can also be taken to mean "bad" in purist terms, for the software will have been written in one of the high level languages, all of which are known for the major characteristic of code inefficiency.

Any program written in a high level language will take up more memory space than if it was written in machine code, even one that has been compiled. The trouble is that the program, if it is of any reasonable degree of complexity, will be almost impossible actually to write in machine code.

> **The hardware needed to go down the self-build route is now available, and in a form that is eminently suited to the requirements of the non-expert systems builder**

The new microprocessors mean that such code inefficiency can be tolerated. They provide the performance to overcome the inefficiency by virtue of their processing speed and memory addressing capabilities.

The memory devices also hold more, so that though bigger system memories are needed to cope with the inefficiencies, the physical size of the systems has not grown.

This is now leading back into the original market for microelectronics — industrial control and automation — and also towards low-cost robotics built of "Lego bricks".

For many industrial companies, the use of one or more robots or process control systems is attractive because of the theoretical advantages of increased efficiency, higher productivity, greater reliability and the rest. The advantages remain theoretical, for many because such systems are expensive, often difficult to program and take time to commission in service.

Some of these problems could be overcome if the companies had the internal resources to construct their own robots or control systems — but they lack them, particularly the skilled personnel.

This may change, however. The hardware needed to go down the self-build route is now available, and in a form eminently suited to the requirements of the non-expert systems builder.

Most of the major semiconductor manufacturers now have complete families of board-based products, ranging from CPU cards, through memory expansion boards and on to general and specialised interfaces. Standard bus structures, in particular Intel's Multibus, allow any number of these boards to be connected together into a system with surprising ease.

It becomes a relatively simple task for a user to order and construct say, a 16-bit computer system with 128 Kbytes of user memory, 64 Kbytes of system memory, and a complete set of interfaces.

Not only is it a simple task; it is also relatively inexpensive for the power that is then available.

Software is, by comparison, a problem for in the area of robotics and industrial control it is still very much a bespoke art form. But even here, hardware technology is starting to play a part. Software in silicon, firmware, is now starting to appear in a variety of guises. At one level there is the appearance of high level languages in read-only memory devices. At another level the beginnings of operating systems software in ROM is coming through. At a third level, dedicated function devices, such as arithmetic processors, are now available.

As this route is followed and expanded, so it will be possible for users to adopt the same approach with software as they do with hardware — purchase modules of the stuff. They will come in the form of dedicated functions where needed, certainly a firmware operating system and high level language(s) module, and probably a collection of applications routines, such as arm movement control.

If the high level language is then as user friendly as possible, a non-technical user will be able to produce the programs required simply by requesting the order in which the routines are linked and run.

Systems development in the industrial area will then return to the industrialists who should, theoretically at least, best understand what it is they wish to achieve.

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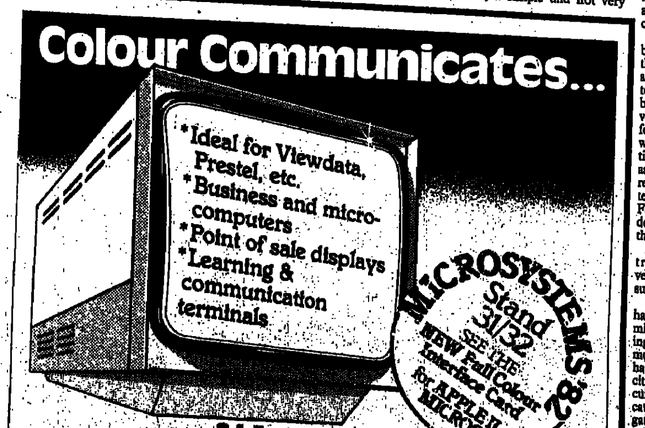

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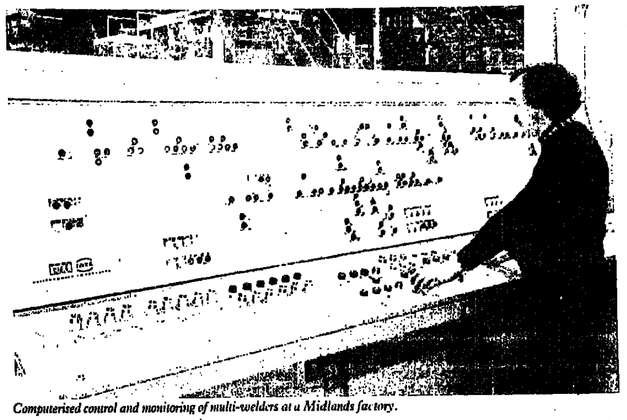
Philip Manchester takes a look at the major problem confronting designers and builders of industrial control systems

Searching for the perfect micro software solution



Computerized control and monitoring of multi-welders at a Midlands factory.

INDUSTRIAL control is a broad and diverse application area for digital electronics, placing special demands on both hardware and software designers. Unlike most application areas which have been the target for computerisation, however, industrial control systems have a long established tradition of stretching available technology to the limit.

Early attempts at building control systems were severely limited by the capabilities of the hardware. Since the beginning of the microprocessor age, things have changed radically.

Micros have not only brought cheap processing power but have opened up many possibilities through the use of distributed power by placing processors throughout a control system.

Such systems do not allow the same latitude in software development as in most other areas. They are effectively "embedded" systems and are not necessarily under the direct control of a human operator. This means that the software developed for such systems must be more reliable and inevitably more compact than software used in less critical data processing applications.

The major problem confronting designers and builders of control systems is that of parallel processing.

In a typical industrial control system, a vast number of separately executing tasks will be going on at the same time. In some cases the results of one task will feed data to others.

The co-ordination of tasks in such systems is a complex and difficult problem.

Industrial control applications can broadly be divided into three major areas and the type of software solution depends on which area is being addressed.

Continuous control systems are those which are required to keep a process in a steady state through use of what are called single loop feedback controllers.

Sequence control systems require a degree more sophistication in general as they are charged with following a number of pre-defined tasks stored on some magnetic or other medium. Such systems are also required to cope with production lines, for example, where a number of different products are manufactured using the same equipment.

The most sophisticated of the three types are those under the heading of information processing systems. Here the system is not only charged with a control operation, it is also required to report on progress and in some cases take the initiative by making decisions in real time which will effect the industrial process without outside intervention.

> **The ultimate aim is to create a totally integrated factory system which will handle everything from raw materials to finished goods**

The National Physical Laboratory and the software house Scicon began work on their solution to this problem in 1977 with a multicomputer architecture called Demos.

Implemented using the Intel 8086 microprocessor, the system is known as Demos 86.

To give some idea of the software problems involved in such systems, Barry Brinkman of Scicon estimates that 80-90% of the cost of real time systems lies in the software.

In building the Demos system, the developers were acutely aware of the problems of parallelism and have adopted a concurrent version of Pascal to build the operating environment.

Each processor in the Demos system contains a kernel which enables the system to be viewed as a single virtual machine. The operating environment or application support environment, written in concurrent Pascal, is responsible for controlling this virtual computer. The applications software is written in standard Pascal.

Brinkman describes concurrent Pascal like this: "Concurrent Pascal includes explicit constructs for concurrent programming. These provide a natural means for the programmer to express the way in which sections of the program are to execute in parallel, interact and synchronise. It includes mechanisms to specify explicitly access rights, which programs may have to be suspended and transmission delayed until the destination module is ready to receive data. This enables the concurrent Pascal program to be distributed across a multicomputer, the source and destination modules being accessed by their respective kernels."

As the applications programs are supported using this technique, they become distributed across the whole multicomputer despite the fact that they are written as a program for a single machine. This is achieved using a component called Sysgen.

The Demos system is extremely ambitious in its range, taking in applications such as inventory control and production scheduling as well as the industrial process control applications. The ultimate aim is to create a totally integrated factory system which will handle everything from raw materials to finished goods.

Another approach to the problem of embedded systems has been developed by Systems Designers. Using the Mascot system built originally for military systems by the Royal Signal and Radar Establishment at Malvern, SDL has extended the technique for commercial application.

Mascot, which stands for Modular Approach to Software Construction Operation and Test, was designed to meet the very demanding needs of enbedded military systems, where components of the same system are often developed in isolation for security reasons. It is more than just an operating system although it does contain an operating kernel in much the same way that Demos does. But the system is viewed from the beginning as a network of co-operating parallel processes.

Chris Nettleton, a senior consultant at SDL, defines the Mascot system as follows: "It defines a formal method for expressing the structure of a multi-programming or real time system. It imposes a disciplined approach to design which yields a highly modular structure and encourages a program acceptance strategy based on the test and verification of single modules and small subsystems."

SDL has put Mascot together with the real time language Coral 66, the military standard in the UK, and a software component to enable the development of links between host and target machines. The whole package is known as Context.

Warren Spring Laboratory in Stevenage has built a special version of Basic known as Control Basic to capitalise on the knowledge of this language that many engineers have. The language was developed jointly with the Chemical Engineering faculty at the University of Oxford and is marketed by the British Technology Group (BTG).

It uses the standard Basic syntax but offers additional instructions appropriate to the application area. It also includes plotting facilities and a Wait instruction to cope with the synchronisation problems in control applications.

In future, there can be little doubt that the major influence on sophisticated control applications will be the US Department of Defence language Ada.

Both the language itself and the proposed support environment (APSE) are aimed at coping with the problems of parallelism and the design effort has been heavily influenced by Pascal on the language side and Mascot on the support environment side.

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In this preview of next week's Microsystems '82 at London's West Centre Hotel, David Casey talks to some exhibitors

'We like this exhibition because it is wholly professional'

PRESENTED with an exhibition fixture list as densely packed as this winter's Football League programme, there is no shortage of opportunities for a computer company to spend its promotional budget.

If the pattern of stand bookings at venues during the past year is any indication, exhibitors are becoming more discriminating in their selection.

There are, of course, a handful of industry-wide shows which attract exhibitors from every sector. Compec, for example, is now a fixed point in the calendar for any company with a reputation to establish or preserve. A complete cross-section of suppliers and service organisations make contact at Olympia in November with an equally diverse audience.

But scale alone is not the only factor in the decison to take a stand. More specialised exhibitions – Microsystems '82 among them – attract only a fraction of the visitors through the turnstiles at Compec, while offering more intensive exposure to a company's target audience.

Experience of appearing at perhaps half a dozen shows in one year provides a fair indication of the events which are likely to generate a financial return. Joining the exhibition circuit for the first time is therefore a daunting prospect for an organisation; the more so when that business is only a few months old, and when it is faced with personal microcomputer shows advertising to everyone from chairman to the man in the street.

Mass Microsystems of Welwyn Garden City was formed at the end of 1981, but had no reservations about appearing at Microsystems this year. Richard Zawadzki, the customer support manager, visited the 1981 exhibition while with his previous firm and came away impressed.

"We were consultants in the defence field and used to attend several shows each year," he said. "The key to Microsystems was the quality of exhibitors handling upmarket business. This is exactly the slot that we are aiming for in Mass Microsystems, so taking a stand was an obvious step."

With a range of specialised software which includes scientific word processing for micros, it is vital that Mass Microsystems reaches the customer target cost-effectively.

Could Zawadzki have achieved this by taking space at Compec? "We would hope to gain the interest of managers and senior representatives from large companies with their own research department, or smaller firms marketing their own product. In the more intimate atmosphere of the West Centre Hotel, we can demonstrate our systems effectively to this specialised audience. We are also inviting quality clients of our own to the stand," he said.

The idea that the more compact exhibitions may have an advantage for an exhibitor was taken up by Brian Bradford of Crellon Microsystems, exhibiting at Microsystems for the second year.

"Our experience is that we had a better quality of leads form the smaller shows than the larger exhibitions. This may be a subjective assessment, but I feel that a higher proportion of the visitors wer really interested," he commented. With a product range of microprocessor development systems designed primarily for OEM customers, Crellon would be hoping to make contact with a broadly similar audience to Mass Microsystems.

Whether taking space at an exhibition leads to an increase in orders is a matter for conjecture. For Bradford, however, there was a direct relationship. "Last year we felt we had a good response because some first-class leads were generated – and we reckon that some of these converted into orders as a direct result."

Measured in terms of the total financial commitment, few exhibition stands directly cover their costs for the participants. Apart from the hire of space, a display has to be mounted professionally, and additional product literature printed.

A major outgoing is the expense of manning a stand for three days. While this may be absorbed as a staff overhead in the short term, it must nonetheless be set against any profit which may arise from orders at a show.

An exhibition with a track record of attracting "quality" visitors from major organisations can cover the stand costs on the first day. Robbie Robinson is sales manager of terminal manufacturers Gresham Lion of Twickenham. He sees Microsystems '82 as an important marketing tool.

"Dealing with major OEMs, there is the prospect of taking on board at least one substantial customer," he said. "This would certainly pay for the exhibition. We would hope to talk to perhaps half a dozen firms with whom we are not already in contact – and convert a few of these."

Robinson does not deny that the larger shows play a vital part in his marketing strategy. "We had a very good Compec but favour the smaller exhibition as well. Our British-made Lyme 5500 and 6000 VDUs caused quite a stir at Olympia. We were quite embarrassed with the response. But that has not changed our view of Microsystems. We like the show and feel we have something to promote there."

Companies visiting firms like Crellon, Gresham Lion and Mass Microsystems are typical of those that the Economic Development Agencies would like to attract away from London and into the regions. For Gwent County Council, taking a stand at the show for the second year, the prospect of meeting businessmen in the rapidly expanding microsystems sector is the main attraction. Based in a Special Development Area of South Wales, Gwent is offering an impressive package of financial and strategic incentives for high technology firms to relocate into the county.

Microsystems '81 was the most encouraging of the dozen major exhibitions at which Gwent County was represented last year. The industrial development team received several promising inquiries from visitors to the stand.

With major companies setting up in Gwent – Ferranti, Mitel and Plessey Marine among them – this part of South Wales is taking off as a high technology zone which will attract microsystem and peripheral suppliers into the locality.

Harry Bexon from Bradford City Economic Development Unit clearly hopes to attract firms towards the North. Like his colleagues from Gwent, he will be at Microsystems for the second year.

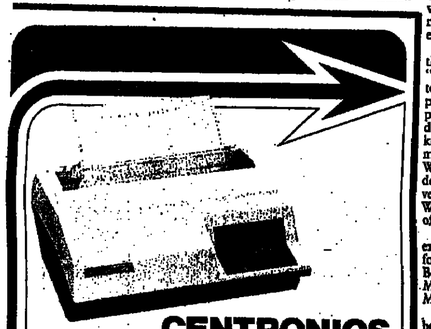
High on the list of incentives he hopes to offer visitors to this year's exhibition will be the lower cost of living in West Yorkshire and the pool of labour with relevant skills.

There are other benefits, however. "Our local University at Bradford has developed with a slant towards microprocessor technology, so that many of the visitors

● Turn to page 25

CAVILL . . . "Relatively small scale of Microsystems '82 an advantage."

Microsystems is at the West Centre Hotel, Lillie Road, London SW6 from February 24-26 inclusive. Opening times are 9.30am to 6.00pm and entrance is £1. The exhibition is not open to the general public.



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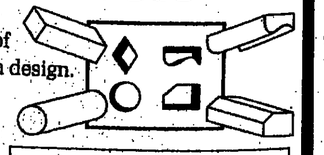

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Show for decision makers

● From page 24

to Microsystems '82 would find its facilities relevant. As a City Council we can offer rent free accommodation where appropriate, and provide direct assistance under the government's microprocessor schemes."

Was it worth Bexon's team taking space at Microsystems? "Apart from the attractions of a National Park, there is a reserve of skilled staff with an electronics background – the residue from the closure of a local Thorn colour TV plant. While we have attracted a trickle of new electronics firms to Bradford, this has only absorbed a fraction of the people available. The show at the West Centre Hotel is a first-class opportunity to encourage more firms to come North."

Two months into Information Technology Year, the Department of Industry is hoping that exhibitors and visitors alike will be taking up support under the Microprocessor Awareness scheme. With visitors to Microsystems drawn from specialist technology companies, it is vital for the DoI to retain a presence at the exhibition.

COLLINS . . . "We like the show because it is wholly professional."

The need to exhibit at the West Centre Hotel was emphasised in the commercial sector by Lloyd Collins of Rair. "It is essential that we mount a stand there, not least because it helps our distributors."

Rair has booked space at this year's show on the basis of its success in 1981. "We like the show because it is wholly professional, but we were also able to follow up some attractive leads for our Black Box and would hope to consolidate this with the new 330 range."

Collins is conscious of an underlying change in the awareness of exhibition visitors. "An increasing number of decision-makers come to Microsystems, making an ideal target audience for the company. The visitors have certainly become more sophisticated in the type of question they ask."

Taking space at the same exhibition in successive years provides an opportunity for a company to "fine tune" the product range for display. Data Translation of Slough, for example, realised from Microsystems '81 that its high-speed data acquisition systems do not have a place in this particular type of show: there was very little interest shown in these products. The emphasis of the company's stand this year will be on interface boards, with one section dedicated to local area network systems.

Data Translation's John Cavill is confident that the 1982 show will attract a high proportion of potential network users. The relatively small scale of Microsystems '82 will prove a distinct advantage in his opinion. "It will enable the serious visitor to spend more time with individual exhibitors. While we accept that Compec is a very important event, its scale makes detailed discussions more difficult."

Seeing is believing when microcomputer-based systems are on show.

Your guide to the stands at Microsystems '82

	Stand No.
Advent Data Products Ltd	70
Bradford Council Economics Development Unit	31 & 32
Bowes Electronics Ltd	100
Butterworth Scientific Ltd (Journals Division)	56
Ceedata	63
Celdis Ltd	4 & 5
Cifer Systems Ltd	40
The Computer Bookshop	95
Crellon Microsystems	8 & 9
Dataflect Electronics	55
Data Translation Ltd	61 & 62
Datarite Terminals Ltd	91
Department of Industry (MAP)	84
Di-An Data Systems Ltd	3
3D Digital Design and Development	85
Digital Equipment Co Ltd	68 & 69
Dillons University Bookshop	41
Flight Electronics Ltd	71
Gilspur Microsystems	23
Graffcom Systems Ltd	82
Gresham Lion Ltd	93
Gwent County Council	15 & 16
Hamilton Rentals Ltd	86
Icarus Computer Systems Ltd	72
Integrated Micro Products	12
ISG Data Sales Ltd	57
Lifeboat Associates	88
Lucas Logic	25, 26 & 27
Mass Micro Products	83
Microforecast	87
Microscope Ltd	38
Microvitec Ltd	32
Millennium Professional & Technical	35
Pye Unicam Ltd	34
Rair Ltd	19 & 20
Rank Xerox	80 & 81
Rapid Recall	39
RCS Microsystems Ltd	37
Real Time Systems/Whitesmiths Ltd	13
Research Machines	50 & 51
SE Labs (EMI) Ltd	21 & 22
Systems Productions Ltd	10
Systems Support Services	28
Tandy Corporation	33
Tektronics UK Ltd	52, 53 & 54
Thomson CSF (Compbnents & Materials Ltd) (EFCIS Division)	7
Transdata Ltd	17 & 18
Venture Computing Ltd	44
Vector International	49
Welsh Development Agency	14
Windrush Micro Designs Ltd	36
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30 Fleet Street, London EC4Y 1AA. Telephone: 01-353 0881. 24 hours
50a London Street, Reading, Berkshire RG1 4SQ. Telephone: Reading (0734) 585802 24 hours

(9557)

myriad

PROGRAMMERS TO PROJECT LEADERS

Our client, a leading Consultancy with offices in the U.K. and Europe, is seeking to recruit a range of staff from Programmer to Project Leader. They currently employ more than 600 DP Professionals at 15 regional offices and have an annual turnover in excess of £18 million.

Banking
- Foreign Exchange
- Loans and Deposits
- Money Market . . .etc.

Commodities
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CENTRAL LONDON
£7,000-£14,000

Successful candidates must offer a sound COBOL background in a commercial environment. They can look forward to joining Western Europe's largest independent computer services company with a career structure second-to-none. Excellent starting salaries are offered together with substantial fringe benefits including non-contributory pension and free BUPA.

Contact our **London office now,** quoting reference TS/1802 and learn about your future career.

Manufacturing
- Production Costing
- Production Scheduling
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- Stock Control
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- Selective Mailing
- Subscription Accounting
- Typesetting . . .etc.

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- Dealer Performance
- Performance Comparisons
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Property Management
- Client Accounting
- Rent Accounting
- Valuations . . .etc.

Shipping
- Bunkering
- Debt Financing
- Voyage Planning . . .etc.

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SYSTEMS PERFORMANCE
Competitive Evaluation Manager

Berkshire **c.£15,000**

This position will appeal to a well-motivated individual with in-depth experience of computer systems performance evaluation. He/she will have a direct effect on development policy across a range of systems.

The successful candidate must offer a comprehensive background in performance evaluation techniques related to both hardware and software. This is likely to be supported by a numerate degree and extensive current experience of at least one major computer system, ideally including its communications architecture. In addition the new manager must have the strength of character to be able to put over his/her recommendations at all levels in both technical and general terms.

The person appointed will have close ties with both the product development and marketing groups. He/she will hold total responsibility for meeting agreed objectives.

This important position carries a high commencing salary and a valuable benefits package including comprehensive relocation assistance where appropriate. The person appointed can look forward to a rewarding career path with an interesting future.

To discuss the scope of this position in detail, contact **Myriad on Reading 585802** or write quoting reference: RW1/1802.

Myriad Appointments Limited

30 Fleet Street, London EC4Y 1AA. Telephone: 01-353 0881. 24 hours
50a London Street, Reading, Berkshire RG1 4SQ. Telephone: Reading (0734) 585802 24 hours

Contractors - The direct alternative

CONTRACTORS

The National Computer Contract Directory is a method of putting contractors and computer users in touch without either side having to resort to intermediate agencies. The potential savings made possible, to both sides, are substantial.

The following table is compiled from a survey conducted among one hundred contractors who were working on behalf of clients to whom they had been introduced by an agency. It shows clearly the distribution of payment for the various categories of contractors.

Category	Average Wkly Pay	Average Charge	Agency Margin	Agency Commission On Pay
Programmer	£319	£445	£126	40%
Senior Programmer Analyst Programmer	£371	£509	£138	37%
Chief Programmer Senior Analyst Programmer	£400	£569	£169	42%
Systems Analyst	£428	£570	£142	33%
Systems Programmer	£572	£780	£238	41%
Consultant/ Project Mgr	£626	£870	£245	39%

If we extended these figures over a year comprising of 47 working weeks, then the annual commission charge on top of your pay varies from £5,405 p.a. to £11,466 p.a. depending on your category!

Because the first three categories accounted for over 70% of the sample, the weighted annual average distribution for all categories is as follows.

Looked at nationally, this means that five thousand contractors would earn over £30 million p.a. for their agencies!

NCCD

THE NATIONAL COMPUTER CONTRACT DIRECTORY

THE DIRECT ALTERNATIVE

For those contracting companies and clients, who make contact and negotiate directly, this margin is available for redistribution in the form of: –

- Increased earnings for the contractor, or
- Reduced costs for the client.

In reality, those negotiating will probably allocate a portion to each side and, purely as a guideline, NCCD has published the following pay indicator based on a 50/50 allocation of margin: –

Contracts through NCCD will earn you between £2,950 and £11,500 extra annually.

Category	NCCD/WEEKLY RATE	47 WEEKS
Programmer	£382	£[illegible]
Senior Programmer Analyst Programmer	£440	£[illegible]
Chief Programmer Sen. An. Prog.	£484	£[illegible]
Systems Analyst	£489	£[illegible]
Systems programmer	£691	£[illegible]
Consultant/ Project Manager	£747	£[illegible]

This indicator will be updated quarterly and made available to advertisers and subscribers.

THE DIRECTORY

The ideal situation is to make details of all contractors available to every major computer user.

The National Computer Contract Directory is a practical system which achieves this purpose.

All entries will be classified under appropriate headings e.g. category, hardware, software, location etc. and a cross reference system will enable the directory user to find specific skills easily, such as CICS, MVS or banking experience. In addition the format will include a profile which augments critical data.

The directory will be made available to all major users in the U.K. and will be updated on a quarterly basis. A busy international section is also envisaged which will positively benefit those wishing to work abroad and those users who increasingly depend on British expertise.

AGENCIES

The ideal agency would know of every contract and every contractor.

Unfortunately, few if any, contractors are registered with every agency. Therefore, in order to access a realistic proportion of available skills, the client must be in contact with over one hundred agencies!

As it is only practical for the client to communicate with a limited number of agencies at a time, it is certain that the contractor misses many opportunities.

Assuming an opportunity, suitable or otherwise, does occur, the contractor's interests are seldom of primary importance during negotiations. The rate the client can afford and the commission the agency is seeking are the central issues. It is often the case that, if the agency charges are too high, the client will not use the contractor, so depriving him of work and income.

NCCD

THE NATIONAL COMPUTER CONTRACT DIRECTORY

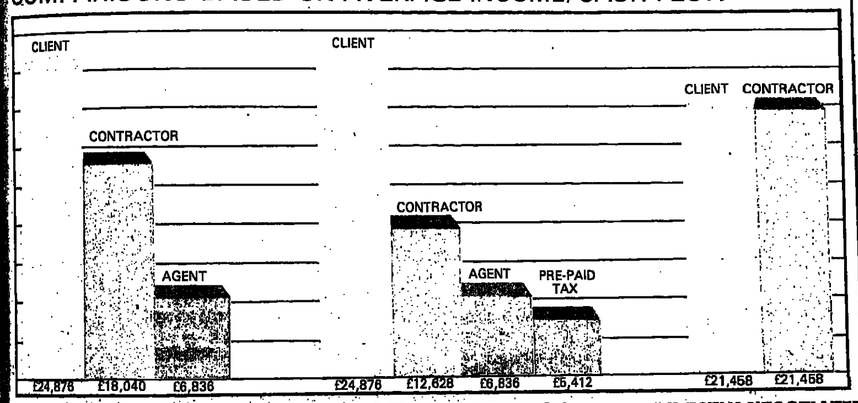
Potential clients will have

- A method of eliminating indirect costs.
- A comprehensive databank of specialist skills.
- A simple method of access to all contractors.

1982 – 83 TAX LEGISLATION

It now appears certain that, from April 5th 1982, those contracting companies who find work through agencies, will have 30% of their income deducted. Under certain circumstances exemptions may be granted and a method of setting-off against P.A.Y.E. liabilities may operate. It is significant, however, that those companies who market their services directly and negotiate contracts without being introduced by an agency are treated like any other business and have the full cash-flow benefit that derives from receiving payment intact.

COMPARISONS BASED ON AVERAGE INCOME/CASH-FLOW



CURRENT SITUATION THROUGH AN AGENCY

POST APRIL SITUATION THROUGH AN AGENCY

DIRECTLY NEGOTIATED

DIRECTORY SUBSCRIBERS

The National Computer Contract Directory is available to every user of contract services. It is cost effective for even the most infrequent user and invaluable if you are a regular user. It is the only comprehensive method of finding contractors, with several major advantages...

AVAILABILITY – You will know in advance, the real number of contractors offering the skills you require ... a useful tool in planning and budgetting.

CHOICE – You will have the widest choice available, allowing an exact match with your requirements – no more compromises.

CONVENIENCE – The expensive and time consuming problem of dealing with several agencies is eliminated – you have one desktop source for all your requirements.

ECONOMY – If you only use the directory once, say for a six month programming contract, you should save at least £1,480 – a years contract with a Systems Analyst would save about £3,360!

The first edition will be published in April 1982. For further details please send this coupon or ring 01-840 0161.

NAME:

POSITION:

COMPANY:

ADDRESS:

TEL. NO.:

SEND TO NCCD, FREEPOST, LONDON W5 2BR.

WHAT YOU GAIN

- Your contracting company is constantly advertised to regular users ensuring continuation of profitable work and minimal 'down time'.
- By releasing more income to your business you are assured of the increased profits and cash flow necessary to expand.
- Each additional assignment you receive, as a result of your entry, increases your client-base.
- For those people interested in the growth of their business, NCCD is a vital marketing tool.
- This entry remains permanently in the directory – free of any charge!

What do you have to lose?

...it's free

DIRECTORY ENTRY DETAILS

IN CASES OF CONTRACTORS EMPLOYING MORE THAN ONE SPECIALIST WORKER, A SEPARATE FORM MUST BE COMPLETED FOR EVERY SUCH WORKER. IF THIS APPLIES TO YOU, EITHER (a) PHOTOSTAT THIS FORM OR (b) INDICATE, IN THIS BOX, HOW MANY ADDITIONAL FORMS YOU REQUIRE.

NAME: –

ADDRESS

NO OF YRS IN DATA PROCESSING:

PREFERRED UK WORK LOCATIONS:

WILL YOU CONSIDER WORKING ABROAD?

JOB CATEGORIES

CATEGORY	NO OF YRS	FUNCTION(S) PREFERRED
PROGRAMMER		
ANALYST		
ANALYST PROGRAMMER		
SYSTEMS PROGRAMMER		
CONSULTANT/PROJECT MANAGER		
OTHER – SPECIFY		

EXPERIENCE (Yrs) MONTHS	PROGRAMMING LANGUAGES e.g. APL, FORTRAN ETC. MONTHS	APPLICATIONS SOFTWARE e.g. CICS, TOTAL ETC. MONTHS	SYSTEMS SOFTWARE e.g. DOS, MVS ETC. MONTHS	APPLICATIONS e.g. PAYROLL, ORDER ENTRY ETC. MONTHS	ENVIRONMENT e.g. BANKING, MANUFACTURING ETC. MONTHS

FURTHER INFORMATION: (NOT MORE THAN 50 WORDS) PROGRAMMERS ARE ADVISED TO DESCRIBE THE DEPTH OF THEIR PROGRAMMING EXPERIENCE AND ANALYSTS SHOULD LIST THOSE AREAS OF SYSTEMS ANALYSIS IN WHICH THEY ARE EXPERIENCED I.E. FEASIBILITY STUDIES, SYSTEM DESIGN, PROJECT RESPONSIBILITY, USER INVOLVEMENT, MANAGEMENT EXPERIENCE ETC. IN ADDITION YOU SHOULD MENTION ANY SPECIALIST EXPERIENCE YOU FEEL IS RELEVANT TO THE CURRENT MARKETPLACE.

PLEASE RETURN TO **NCCD** FREEPOST LONDON W5 2BR.

هكذا من الأصل

REAL-TIME SOFTWARE

c £8K to £10.5K + relocation **Coventry**

Today's up-to-the-minute telecommunications industry provides a perfect illustration of the value of applied real-time computing techniques.

The linking of computers and telecommunications, in particular in the automated office and information systems environment is big business, with worldwide investment running into the hundreds of millions.

GEC Telecommunications Ltd is in the vanguard of development in the field supplying sophisticated equipment to telecommunications authorities, business and military users across the globe.

Currently we are looking for a number of talented real-time software engineers to reinforce the teams at our Coventry headquarters, working on these interesting projects from concept to final customer acceptance.

The people we're looking for will be graduates with at least three years proven success in the development of medium or large systems using a high level language. A willingness to take responsibility is essential, since you could well find yourself leading a team.

Salaries will be negotiable in the range £8-10.5K. Other big-company benefits include a generous relocation package where appropriate.

Interested? Then write to Mr. Z. K. Flizak, GEC Telecommunications Ltd., P.O. Box 53, Coventry CV3 1HJ.

GEC Telecommunications

WE ARE NOW EXPANDING AND REQUIRE A RECRUITMENT CONSULTANT

So what is different about us? We are an established professional executive search consultancy with a select reputable client portfolio involved in all aspects of recruitment for sales, marketing and technical support personnel in the high technology market.

We need (preferably) an experienced consultant or a salesman with a good understanding of computing. The successful candidate must possess strong self-motivation and FLAIR!!! This is a ground floor opportunity and therefore career prospects and remuneration are dependent on the consultant's achievements. Interested? Then contact,

(8688)

D.G.H.

D.G.H. Management & Recruitment Consultants
Suite 630, Grand Buildings
Trafalgar Square, London WC2
Tel. No. 01-839 6721

Business Development Manager

c £15,000 Base Salary (negotiable)

Sales and Marketing into the Defence Sectors of major Electronic Groups.

Location: SURREY/BERKS/HANTS

Our Client is a leading International Systems Consultancy specialising in the mini and micro computer areas, providing a full range of consultancy, systems and software development services and products. Established for over 12 years, they have concentrated on the high technology aspects of computing, and have achieved a standard of excellence second to none, in the areas of:–

Defence
Information Systems
Communications
Advanced Software Technology
Real Time Systems

One particular area of success has been within the Defence sector of the electronics industry, and as a part of their 1982 business plan they wish to reinforce their effectiveness with a skilled executive, who will have sole responsibility for this market.

Ideally you will have had a background in real time systems development in the defence or electronics industries, and then have moved into a Sales and Marketing function where you will have spent a minimum of 3 years. Whether this latter experience has been gained in a service or product sales environment is immaterial.

Remuneration comprises a base salary of at least **£15,000**, and will include an excellent range of fringe benefits, including a prestige company car, assisted pension scheme, permanent health schemes, and if required a generous and full relocation package.

For further information and an immediate confidential interview, telephone Chris Fry on 01 935 0671 (24 hour answering service) or 05827 2354 evenings and weekends.

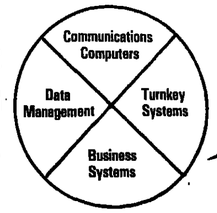
SR

London 01-935 0671 James House, 46 James Street, London W1.
Birmingham 021-236 3781 35-37 Great Charles Street, Queensway, Birmingham B3 3JY.
Manchester 061-833 0427 Blackfriars House, The Parsonage, Manchester M3 2JA.
Brussels 010 322-640 7151/71 Avenue Louise 327 Boite 4, 1050 Bruxelles.
Amsterdam 010 3120-760347 Willemsparkweg 92, 1071 H.M. Amsterdam.

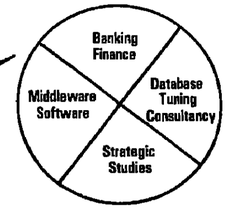
Specialist Computer Recruitment Ltd.

Real Time Systems

DEC
DG
Honeywell



London



Tandem
IBM
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Programmers to £10K

Designers to £17K

Bright, technically minded programmers and designers are required to work on a variety of exciting projects. We are seeking people with previous experience of real-time minicomputer and mainframe software and applications. DEC/RSX, D.G. and Honeywell Level 6 experience is attractive, as is IBM and Tandem at designer level. Programming experience should be a mixture of assembler and high level languages.

Our client is a successful, profitable and expanding company with an International reputation for advanced computing and communications skills. They provide services and products in various countries around the world to major companies, professional bodies and government organisations. For employees the company provides an excellent range of benefits including relocation assistance where appropriate. Prospects for advancement and long term career development are excellent.

Apply in confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings Gt. Missenden (02406) 4705 or daytime as below.

HR

H. R. Associates Limited
Executive, Computing and Technical Personnel Consultants
Hill House, Hill Avenue, Amersham, Bucks. HP6 5BQ. Tel: 02403 28383
London office: Regent Street, W1

HR

pro-bel LIMITED

A progressive and rapidly expanding company in the broadcast industry.

MICRO PROCESSOR APPLICATIONS ENGINEER

We are in urgent need of an engineer to design processor-based control systems for our custom-built audio and video routing systems. This involves the specification of hardware arrangements using our 8802-based processor system and the preparation of software on our Tektronix development laboratories to meet specific customer requirements. Previous experience in fault finding at circuit level and software preparation in assembly language is essential to this post as is a willingness to shoulder responsibility for control of large broadcast assignment routers.

Salary is negotiable in the region of £8,000 p.a. to which a valuable benefits package will be added after a qualifying period.

For further information and an application form please apply to: Graham Roe on Reading 668123. (8578)

EXPERIENCED COBOL PROGRAMMER, AVAILABLE NOW FOR SHORT TERM CONTRACTS

Worked with Honeywell L62, L64
IBM 370/ICL 1900 and also conversions.

Please phone 044853364
or write Box No. 1192
(Fluent German)

(8589)

MICROCOMPUTER ENGINEER

Self starter with drive and initiative, able to take considerable responsibility, required for a leading microcomputer company. Excellent salary and conditions and exceptional prospects for career advancement.

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21-22 GREAT CASTLE STREET
LONDON W1N 7AA
TEL. 01-629 0220/1546
01-493 4968

CONTRACTS

PROGRAMMERS
OS, MVS, COBOL, TOTAL, CICS — BUCKS

PROGRAMMERS
PL1, CICS — c. LONDON

Please contact: Jackie Robbins (8570)

FORCE 8 computer services
8 Mint Walk Croydon 01-680 3761

PL/1 Contracts

DESIGNERS/ TEAM LEADERS

Can you plan and manage a project?

Long projects

***Berkshire: DL/1 with some CICS**
***Leicester: DOS and MVS knowledge**

Please Phone: Sheila Fox
Link Associates Limited
24a High Street, Chesham, Bucks.
(0494) 784922

link (8494)

Senior Systems Analysts

Hewlett-Packard experience

to £9,000, plus London Allowance, plus guaranteed bonus and large company benefits

We are responsible for the UK manufacture of Glaxo pharmaceuticals and their sale in this country.

If you have two years' experience of systems analysis, plus a programming background including COBOL, IMAGE, VIEW and QUERY, we invite you to join our successful and expanding development team. Over the past three years we have built up an on-line distributed database system on Hewlett-Packard computers which is unrivalled in the U.K.

Just look at this:
- 6 × HP3000 Series 44's and 4 × HP3000 Series III's for operational work
- 3 × HP3000 Series III's for development
- 2 × HP3000 Model 64's on order, delivery April/May
- Over 250 terminals and further 50 on order

This on-line distributed database network serves twelve widely separated factories, warehouses and offices.

But this is not all, we are installing micro processor systems at the factories, and we are developing the use of stand-alone systems, database-linked word processing, and electronic mail.

We are developing computer systems in Accounting, Production Planning, Marketing, Personnel, and many other areas: backed by strong teams for technical support, database administration, communications management, and operations.

If you have the experience we require and would like to work with the latest equipment, using it to the full in an expanding environment, please write or telephone for an application form to: Mr. A. Winn, Site Personnel Manager, Glaxo Operations UK Ltd., Greenford Road, Greenford, Middlesex, or call 01-422 3434, ext 2325, quoting ref. AW/224.

Glaxo Operations UK LIMITED

(8571)

A PLANNED FUTURE FOR

PROJECT MANAGERS — Up to £12,000
PROJECT LEADERS — Up to £10,000
SYSTEMS ANALYSTS — Up to £9,000

SAFE COMPUTING, a member of the **CHUBB** Group of companies are market leaders in the supply of Production Control systems and associated commercial software. With installations in more than 30 countries throughout the world **SAFE** has a reputation for providing top service. Since its inception in 1973 the company has regularly launched and successfully marketed a wide range of products and services, the latest of which runs on over 40 different mini and micro computers. To meet with its planned growth **SAFE** is looking to recruit a number of Senior D.P. Professionals throughout its UK Network of offices.

SAFE provides products, support and services on a wide range of equipment including:

ICL SYSTEM TEN, SYSTEM 25 AND 2900
IBM SYSTEM/34 AND SYSTEM/38
PHILIPS P430 AND P4500
Major languages supported cover:
ASSEMBLER, COBOL, RPGII, RPGIII AND MICRO-COBOL

SAFE seeks to recruit highly motivated professionals to extend its current compliment of nearly 200 people. All vacancies will involve working as part of a successful team dealing with all levels of user staff. The opportunities will require a flexible approach and will involve some travel with the chance of short or long term overseas assignments. Programmers with less than 2 years experience are unlikely to be suitable, a greater level of experience will be required for more senior positions.

SAFE can provide a path to a 'PLANNED FUTURE'. A future with an expanding company leading the way in developing and implementing powerful and flexible business solutions. To join this future and experience a high degree of job satisfaction combined with the promotion prospects that only a successful and growing company can provide, send full details of career to-date or telephone any of the following for an immediate interview:

Peter Betts
Safe Computing Limited
Alliance House
Baldwin Street
Bristol BS1 4SA
0272 214346

Geoff Frith
Safe Computing Limited
89-91 High Street
Leicester LE1 4JB
0533 29321

SAFE COMPUTING LIMITED

Philip Heath
Safe Computing Limited
Bridge House
121 Smallbrook Queensway
Birmingham
B5 4JP
021-632 5111

Alan Wood
Safe Computing Limited
Radyne House
Molly Millers Lane
Wokingham
RG11 2PY
0734 791212

(8529)

The Mining Research and Development Establishment's programme covers research development and testing in all fields of science and engineering associated with coal mining. The Computer Systems Development Branch is responsible for Minos computer systems which have been adopted as a standard by the N.C.B. for colliery remote control and monitoring applications. Work is in progress to increase the range of facilities and applications including work on major projects such as the Selby Coalfield.

We have two opportunities for:

Software and Systems Engineers

to £10,000 plus benefits

with knowledge of and interest in one or more of the following fields: ✻ application program development ✻ control of software standards and production ✻ safety aspects ✻ software maintenance ✻ compilers and operating systems.

Candidates should have a degree in computer science, engineering or other science subject and preferably have practical experience in program development in process control systems for industrial applications, experience of PDP11 systems, RSX11M and Coral 66 would be an advantage.

Major developments being undertaken include: monitoring coal face performance, monitoring and control of electrical distribution systems, protective control and management of underground and surface fixed plants such as fans, pumps and water distribution systems, coal transport network control and mine ventilation monitoring.

Salaries, currently under review, will be in the range £6,000 - £10,000 depending on qualifications and experience. Excellent benefits include nearly 6 weeks' annual holiday and self-financing incentive scheme.

Please write with full details to:

NCB Mr. D. J. Allsop, Staff and Administration Manager, National Coal Board, Mining Research & Development Establishment, Ashby Road, Stanhope Bretby, Burton-on-Trent, Staffs. DE15 0QD.

Closing date for receipt of applications is 12th March 1982.

(8536)

FREELANCE AND PERMANENT REAL TIME

LONDON AND HOME COUNTIES/WEST COUNTRY
PDP 11 VAX 11 MICROS

S-COM Computer Systems Engineering is an established Software and Systems engineering company specialising in Micro and Mini Computer Based Systems, for industrial and defence clients.

Vacancies exist at Project Leader, Consultant and Designer/Programmer levels, for people who have attained some degree of specialisation in at least one area of True Real Time Activity.

We have been commissioned to undertake several projects in areas of Communications, Process Control, Radar and Graphics, which require us to secure more skills in . . .

★ RSX & VMS Systems and Applications Programming
★ Block structured and Assembler languages (Mini & Micro)
★ X-25 and Network Protocols

Remuneration within the following scales is on offer:

Permanent Staff ..... £9K-£14K p.a.
Freelances:
Programmers/Designers ..... £370-£450 p.w.
Project Leader/Consultant ..... £470-£575 p.w.

In addition an attractive benefits package is available to both permanent and freelance staff.

Please write to or telephone:
Chris Hawkins or Paul Roebuck
S-COM Computer Systems Engineers Ltd.
Market House
Market Square
Aylesbury
Bucks. Tel: 0296-32023

S-COM COMPUTER SYSTEMS ENGINEERS LTD.

(8522)

SHAPE TECHNICAL CENTRE
The Hague
Netherlands

A NATO technical/scientific establishment has a vacancy on its international staff for a:

SCIENTIFIC ASSISTANT

to work primarily as Senior Programmer under supervision of a Project Leader.

DUTIES:

Program design, development, coding, debugging, documenting, installation, acceptance testing for interactive, internetted, mini- and microcomputer systems.
Supervising junior programmer(s) and training of military personnel for use and maintenance of software products.

Keeping the laboratory current, secure and tidy as to system software, storage of programs and datafiles, and procurement of peripherals.

QUALIFICATIONS:

The following qualifications are mandatory:

Education
Certificate equivalent to UK HNC, HND; Dutch HTS; or German HTL in Computer Science, *Mathematics or another subject in which Computer Science forms a major part.*

Experience
Five years' practical programming (incl HOLS) experience including design and system acceptance testing. Two years' in-depth experience in use of real time interactive operating systems, including minis and micros.
Candidates with specific qualifications on PDP-11 hardware and software will be preferred.
Initial annual net salary for non-Dutch married officials without children amounts to DG 50,874.
Candidates who are nationals of one of the NATO countries should apply to the Personnel Officer, SHAPE Technical Centre, PO Box 174, 2501 CD The Hague, Netherlands, quoting reference CCS/1/82, within three weeks of the appearance of this advertisement.

(8512)

DIRECTOR FOR A MAJOR PROJECT IN INFORMATION TECHNOLOGY

ADONIS will be a

document delivery service supplying on demand copies of scientific articles from a ***computerised database*** growing at a rate of more than 200,000 articles per year using ***Laser scanning, optical disc*** and high-speed printing technology.

Responsibilities include the development and operation of a database creation centre, probably located near London, and the marketing of a *complete document delivery system* to major libraries throughout the world. A staff of 15-20 is envisaged, including a technical sales team.

Applicants should have a successful record of management at a senior level and of marketing sophisticated computer-based library and information systems. Experience of publishing would be an advantage. The appointee will report to a Board representing a consortium of major international science publishers.

Salary and conditions will be commensurate with the level of expertise and experience required of the successful candidate.

Applications should be sent to ***ADONIS*** Project Secretary
B. T. Stern
Elsevier Science Publishers
P.O. Box 2400
1000 CK Amsterdam
The Netherlands

before Friday, the 19th of March and should give full details of past as well as current activities. If more information about ***ADONIS*** is required contact B. T. Stern at the above address.

(8541)

UNIVERSITY OF ZAMBIA
Applications are invited for the post of
DIRECTOR OF THE COMPUTER CENTRE

Applicants must hold a higher degree with between three to five years computing experience, of which at least two years must have been in a supervisory or managerial capacity. Experience in teaching Computer Science or training computer staff would be an advantage. The appointee will be responsible for providing the computing resources for all requirements in the University. Salary scale: K 9,756-11,196 pa (£1 sterling = K 1.66). The British Government may provide salary supplementation and associated benefits. The rate of supplementation, which will be negotiated on appointment, is reviewed annually and is normally tax-free. Five to four year contract; biennial overseas leave; gratuity; family passages; baggage allowance. Detailed applications (2 copies), including a curriculum vitae and naming 3 referees, should be sent to the University Secretary, University of Zambia, PO Box 31238, Lusaka, Zambia, to arrive no later than 23 March 1982. Applicants resident in UK should also send 1 copy to the Committee for International Cooperation in Higher Education, The British Council, Higher Education Division, 10 Spring Gardens, London, SW1A 2BN. Further details are available from either address.

(8917)

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BOX NUMBERS

Box number replies should be addressed to:

Box Number .....

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The Quadrant
Sutton, Surrey SM2 5AS

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logistix Logistix Recruitment Limited
10 Grenville Place, London SW7 4RW

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Comms. Consultants
U.S./London: Salaries to £17k + Allowance

Consultants and Senior Consultants with extensive design & development experience in the fields of Voice/Data PBXs, Public Data Networks and distributed processing networks are urgently required by a leading Communications Systems Supplier and Consultancy. These positions will strongly appeal to those who not only wish to participate in the formulation of data communications strategies but also have an interest in retaining a strong technical bias in their work. Naturally, familiarity with ISO and CCITT standards is a prime requirement and those applicants who have sat on one of these standards committees will be especially welcome. A degree of mobility is essential as most positions involve some European or transatlantic travel. **Ref: L/7/A**

Navigation Systems
West Home Counties: Salaries to £13k

A highly regarded supplier of precision electronic instruments is seeking a number of **Software Development Engineers** and **Systems Designers** for its Thames Valley Research and Development facility. The Company specialises in the development and supply of software and systems to companies in both the private and public sectors. Current requirements exist for those who hold at least one numerate degree and have a minimum of one year's industrial experience. Practical programming skills must include total fluency in one or more of:- PASCAL, FORTRAN or MACRO-11. Of particular interest are candidates who have an in-depth knowledge of the development of complex software where high reliability is a critical operating factor. **Ref: L/7/B**

Management Consultants
London: Salary to £18k

Our client, based in Central London, has an enviable reputation as one of the U.K.'s most prestigious Management Consultancies. An expanding client base in S.E. England has produced vacancies for additional consultants to join existing project teams. All candidates must be self-confident, presentable and have good personal communication skills. It is anticipated that you will be a graduate aged 28 to 34 with the ability to appreciate problems from a business, technical and political point-of-view. Particular requirements are for consultants who have a knowledge of structured design techniques, Data Base Management Systems or networking in a commercial Data Processing environment. Applicants who have experience of leading or managing a project team will, of course, be considered for more senior positions. **Ref: L/7/C**

Process Control Systems
London/Benelux: Pkg to £14k

Real Time Programmers and Senior Programmers are required for the Research and Development facility of a major multinational corporation. Of particular interest will be those who have participated in the development of PDP-based process control systems or have gained experience of simulation systems utilising any 32-bit minicomputer. Software expertise should include fluency in a high level language such as Fortran, Pascal or RTL/2 with, preferably, a good knowledge of an Assembler as an additional skill. Candidates who have also worked in a multi-microprocessor environment will be especially welcome. **Ref: L/7/D**

Micro Design Engineers
Wilts/Avon: Salary to £10k

A number of Micro-Processor Design and Development Engineers are sought by a leading micro-computer and semi-conductor manufacturer. As there are a considerable number of positions available, the variety of skills required is, necessarily, diverse. However, experience in one or more of the following areas is essential: customisation of Operating Systems such as CP/M or MP/M, with a salary premium attached to a knowledge of a networking O.S., compiler and cross-compiler development particularly if utilising PASCAL or C; familiarity with a leading MDS such as ISIS and, also, experience in the design and production of interface hardware and software. A degree of customer contact is a feature of most of these positions and, therefore, an outgoing personality and good communications skills are required. **Ref: L/7/E**

Micro Pascal
Herts: Salaries to £10k

The Research & Development division of a leading multi-national corporation requires a number of programmers to assist in the development of both Applications and Systems software. All respondents should possess a Degree or H.N.C. in a relevant discipline followed by at least two years in industry. A minimum of one year's development experience on either Intel 8080/5 Z80 based systems preferably running under CP/M, is essential; as is fluency in Pascal. A useful supplementary skill would be a knowledge of an Assembler language. **Ref: L/7/F**

Sales & Marketing Engineers
Oxfordshire: Salary £13k + Car

A leading Software and Total System Supplier has a requirement for a **Sales and Marketing Engineer** for its Regional Headquarters. Candidates, preferably aged 28-35 years, should hold at least one numerate degree. It is an absolute condition of this appointment that you should offer direct experience of all of the following work areas:- marketing studies, product appraisal and planning; "front-line" Sales involvement to either the public or private sector; in-house and customer technical support of microprocessor based systems within a high technology environment. Of additional benefit will be those candidates who can demonstrate expertise in software development of compilers and the generation of tuning of real-time orientated Operating Systems for which a salary premium will be paid. **Ref: L/7/G**

Comms. S/W Designers
E.E.C.: Salaries to £16k

Interesting opportunities have arisen for Communications Software Designers to be based at several European locations. Our client, an International Systems & Software House, is currently seeking professionals with a minimum of two years' software development experience and a strong commitment to working overseas. Suitable applicants will be graduates who can offer fluency in Assembler and at least one high-level language, preferably CHILL, HSP-L/1 or Pascal. If you have experience in the development of a digital exchange system or have a knowledge of X25 protocolling techniques, then you will be of particular interest. The remuneration package offered is excellent and, of course, a premium will be paid to applicants who offer either French or Dutch spoken language ability. **Ref: L/7/H**

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Are you capable of setting up from scratch a dealer network for a range of products, then running it?

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Either way we are interested in YOU

Our client, a marketing organisation, is launching a series of new hardware products.

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- A colour graphics system based on 8085/8086.
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UNIX SPECIALIST
Salary negotiable

Are you able to advise on, and manage the implementation, configuration, package adaptation and special interfaces for UNIX type operating systems?

For further information telephone Jenny Dalrymple-Hay or Ian Murray West on 01-493 2947 (day), or respectively Beaconsfield (04946) 4579, Milton Keynes (0908) 563415 (evenings/weekends) or write quoting Ref. 9896.

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(9896)

HIGHWAYS & TRANSPORTATION DEPARTMENT
Transportation Branch

Engineer/Programmer
£5,064-£7,137

We are seeking a graduate engineer with experience in computer programming to work on CAD and related projects. A working knowledge of FORTRAN is essential and some experience or training in traffic engineering/highway design would be an advantage. Maidstone based with flexible working hours in operation. Starting salary will depend on experience. Application form returnable by 26 February from the County Surveyor, Sandling Block, Springfield, Maidstone (Ref. PO663). (SAE please.)

KENT COUNTY COUNCIL

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PROGRAMMER

to work with one of the most experienced IBM Systems 38 team in the U.K. Experience in RPG 3 would be preferred, however we would be willing to train someone with approximately 2 years' RPG 2 experience.

Saga Holidays is an expanding publicly quoted tour operators specialising in providing holidays for the over 60's. The package is an attractive one including a competitive salary, a fully subsidised canteen, excellent fringe benefits and working in offices situated in 27 acres of land overlooking the sea on the outskirts of Folkestone.

Please send full details of your career to date to:
John Gould
Personnel Manager
Saga Holidays Ltd,
Folkestone
Kent CT20 3SG

(9588)

Systems Administrator

required by professional institute to run their DG NOVA 3 and 4 MINI Computers. Experience on Data General equipment and in business BASIC AN an advantage but not essential. This is an excellent opportunity to gain early experience and responsibility in the computer field and would suit a graduate in computer science. Otherwise applicants would need to have at least six months' commercial programming experience. Salary not less than £5,000 P.A.

Please telephone: 01-580 4741 Ext 39.

(9575)

BOX NUMBERS

Box number replies should be addressed to:

Box Number.....

c/o Computer Weekly
Quadrant House
The Quadrant
Sutton, Surrey SM2 5AS

RPG 11 ANALYST/ PROGRAMMER
SYSTEM/34
CAMBRIDGE/SUFFOLK BORDER £7500+

We are one of the country's leading manufacturers of agricultural equipment, and we are looking for an Analyst/Programmer to enhance our existing production, financial and marketing systems and to develop new systems as required.

The successful candidate will probably have at least two years' experience of RPG 11 on a System 34, working in an industrial environment. He or she will be expected to take overall responsibility for the running of the DP Department and will report to the financial director. Relocation expenses will be paid where appropriate.

Please write, enclosing a C.V. to **J. P. Harrington, Hestair Farm Equipment Ltd., Exning, Newmarket, Suffolk CB8 7HD.**

(9594)

Key Sales and Product Management Opportunities

Our Clients are a leading international Company, providing a wide and varied range of computer solutions to industry and commerce. 1982 will see the introduction of exciting new products, and thus demands the appointment of three key Managers, each of whom should possess no less than 7 years computer industry experience.

Regional Sales Manager
c£21,000
plus Car
North/Midlands

This Senior Sales Management post requires of the successful candidate, a stable and proven track record within the computer industry. In that time, you should have gained significant Sales Management and Marketing skills, and be able to demonstrate a sound business knowledge and commercial judgement. For further information and confidential interview, contact Cathy Tracey on 021 236 3781 or 021 705 4583 (evenings and weekends).

Strategic Sales Manager
c£21,000
plus Car
Middlesex

This appointment requires the combined specialist skills of Major Accounts, Sales Management and Marketing. You should be able to demonstrate a proven track record within these areas of the computer industry, as you will hold a significant front-line Sales Management responsibility for all UK major accounts – penetration and development. For further information and confidential interview, contact Chris Fry on 01 936 0671 or 05827 2354 (evenings and weekends).

Product Marketing Manager
c£16,000 + bonuses
plus Car
Middlesex

This position demands an in depth association with the computer industry, where you will have acquired significant skills in both Sales and Marketing environments. Recent Product Management involvement in such areas as Networking and/or Distributed Processing would prove invaluable. For further information and confidential interview, contact Peter Dudgeon on 01 935 0671 or 01 674 8627 (evenings and weekends).

London 01-935 0671 James House, 46 James Street, London W1
Birmingham 021-236 3781 35-37 Great Charles Street, Queensway, Birmingham B3 3JY
Manchester 061-833 0427 Blackfriars House, The Parsonage, Manchester, M3 2JA
Brussels 010 322-640 7151/71 Avenue Louise 327, Boite 4, 1050 Bruxelles
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Equally interesting is the way working with our 300-strong Professional Services Division can transform your career.

Your experience base broadens quickly and dramatically. In a short time, you've tackled a spread of work that most people wouldn't see in years.

You acquire the competence – and the confidence – to take bigger, more personal responsibility for bigger projects.

And you enjoy, the rewards and status to match.

Talking of rewards, we're now offering around £12,000 for men and women with five or more years COBOL programming experience in commercial, financial or industrial applications. We also have vacancies for people with as little as 18 months experience – and salaries of around £7,000 to match. But regardless of the length of your experience, we'd like it to include IBM, Hewlett Packard or Data General hardware.

Obviously, such a company isn't the right professional environment for everybody.

But for men and women with the imagination and intelligence to grasp both broad systems concepts and technical subtleties, Data Logic is the place to be.

If you're with us so far, you won't want to waste any more time before you find out more about Data Logic's approach to computing, and about what working with us could do for your career.

So your next step is to phone David Robinson on 01-578 9111, he'll make time to give you all the answers you want. Alternatively, send your c.v. or phone for an application form to Data Logic Limited, 320 Ruislip Road East, Greenford, Middlesex.

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IBM ANALYST– PROGRAMMERS AND PROGRAMMERS

ADVANCED IBM INSTALLATION
The organisation utilises large IBM hardware and an on-line database system is operational. In addition, a network with distributed databases at its offices in North and South America and Europe is being set up. COBOL is the main programming language.

WORKING ENVIRONMENT
The development team comprises a number of experienced analyst programmers who work individually on projects or combine into small project teams as the need arises. A high proportion of the staff is British and English is the working language of the installation.

EXPERIENCE REQUIRED
For the analyst programmer vacancies, highly experienced candidates with at least five years' varied commercial work utilising COBOL on large IBM hardware are needed. Some database and TP experience is desirable. For the programmer vacancies, three years' experience of COBOL on large IBM hardware and software with exposure to DB and TP are desirable. For both positions training will be given to fill any technical gaps.

SALARY & BENEFITS
There is considerable flexibility in what can be offered and in addition to the basic salary, a vacation allowance, annual bonus and tax-free travel allowance are paid. The total package will range from perhaps £11,000 at the more junior level to £17,000 for a suitable senior person and will ensure a substantially higher standard of living for selected candidates. Medical insurance is paid by the Company.

RELOCATION
A generous relocation package is offered to help candidates and their families settle in satisfactorily.

LIVING IN HOLLAND
Many British computer staff work in Holland and it is in many ways the "softest landing" for those who wish to move to continental Europe. The client is located in a small town near the coast and accommodation in the area is not difficult to find and the cost of living in general is now lower than in the UK, due to Holland's lower rate of inflation.

LANGUAGE
English, as well as being the working language of the installation, is generally spoken throughout Holland, which considerably eases settling in problems.

INTERVIEWS
Initial interviews with the client's representatives will be held at our offices in Nantwich on 4th March and in London on 5th March.

For an initial discussion, ring me, Neville John, on (0270) 627206 Office Hours or on (0270) 21318 Other Times, or write to me at the address opposite, quoting Ref 207/CW.

Technical Projects Manager

£14,000 to £18,000

Candidates

Candidates will be required to demonstrate extensive previous experience in the development and control of real time computer systems based on large minis, e.g. VAX and Honeywell.

Candidates must have up-to-date experience in structured design and implementation techniques as well as experience in estimating, resourcing, project planning and control.

Their career to-date will show an above average rate of progress, variety of experience and previous positions of responsibility. It is unlikely that suitably qualified candidates will be below the age of 30.

The Position

The successful candidate will be responsible for one or more projects being undertaken on behalf of clients. This could require different responsibilities on different projects simultaneously. Self presentation in the form of written and oral communication is a normal and regular requirement of the job as is a professional manner with clients and staff. The opportunities for advancement are excellent. The position is based in Central London although some travel to client sites will be required.

The Company

Our client is a successful, profitable and expanding company with an international reputation for advanced computing and communications skills. They provide services and products in various countries around the world to major companies, professional bodies and government organisations. For employees the company provides an excellent range of benefits including relocation assistance where appropriate. Prospects for advancement and long term career development are excellent.

Apply in confidence to Terry Harvey by sending personal and career details, or contact him for an application form: evenings Gt. Missenden (02406) 4705 or daytime as below.

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Executive, Computing and Technical Personnel Consultants
Hill House, Hill Ave, Amersham, Bucks. HP6 5BQ. Tel: 02403 28383
London office: Regent Street, W1.

Gulf International Bank B.S.C

Bahrain

Systems Analyst/Programmer

£18-20,000 p.a. Tax Free

There is a challenging and exciting opportunity for a suitably qualified applicant to join GIB's Systems Development team at Head Office, Bahrain.

The applicant should have worked in a banking environment, be articulate, self-motivated and possess an outstanding design/technical background.

He will be managing and leading three development teams. His functions will include working closely with System Development Management on planning, user training, modifications and system usage, installation bank-wide and the establishment of a Processing/Information network embracing all GIB locations.

The total remuneration package is highly competitive and is designed to attract candidates with sound practical ability and a proven record of achievements. The willingness and ability to train others is considered very important.

Applications, including full career details, should be addressed in the first instance to Mrs. M. Lake, Gulf International Bank, B.S.C., 8-13 King William Street, London EC4P 4LD.

All applications will be treated in strict confidence.

Gulf International Bank B.S.C.

Programmer/Statistician

Vacancies exist in the Resource Management Group of the Computing Division at the Rutherford Appleton Laboratory. The positions involve various activities associated with the management of the computing resources on the SERC network. Knowledge of programming, statistics and database techniques is essential. A familiarity with IBM's CMS would be a distinct advantage.

The user community is some 3000 Scientists and Engineers in the British Universities. The computing system consists of large IBM batch and interactive machines (3032/3081) and various multi-user mini computers on a large distributed network throughout the UK.

Posts are based at the Chilton site and will be in one of the following grades:

Scientific Officer £5,176 – £6,964
Higher Scientific Officer £6,530 – £8,589

Some assistance with removal expenses may be allowed in appropriate cases.

Appointment as a Higher Scientific Officer requires a good honours degree and several years experience in this field.

The Laboratory is a friendly community with its own restaurant and sports facilities nearby. We offer excellent working conditions and benefits include a local transport service, generous holidays, sick leave allowance and a non-contributory superannuation scheme.

For an application form, please write to: **Recruitment Office, Personnel Group, Science and Engineering Research Council, Rutherford Appleton Laboratory, Chilton, Didcot, Oxon. OX11 0QX, quoting ref VN025 or telephone Abingdon (0235) 21900 Ext. 510.**

Closing date for applications: 11th March, 1982.

8495

Rutherford Appleton Laboratory — In the forefront of research

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PROCESS CONTROL

South Coast **c£13,000 neg.**

Our client, a leading designer of custom built process control systems is currently undergoing a major expansion programme. To ensure the success of this programme our client is seeking to recruit a high calibre

SENIOR APPLICATIONS PROGRAMMER

capable of building and controlling a specialist group affording an Applications Software facility to all divisions of the company.

This is a senior position likely to appeal to graduates, with a minimum of five years' experience of applications software within process control, looking for an opportunity to work in a stimulating environment, where their innovative talents will influence the growth of the company. A good working knowledge of computer hardware/software and operating systems is essential, as is Assembler coding and at least one high level language.

The excellent rewards will reflect our clients progressive attitude and will not be a problem for the right applicant. Relocation expenses to this ideal location will be offered where necessary.

If you feel your career aspirations match our clients prospects then telephone Tony Tobin on

CRAWLEY (0293) 543431
(9 a.m.-6 p.m., or 24 hour answering service)

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Esso

Telecommunications Planning Analyst

Esso Petroleum Company Limited employs very extensive private telecommunications networks for transmission of voice and data traffic. Several SPC telephone exchanges, a telegraph message switch and a centralised teleprocessing control centre are in operation. The main computer comprises two large IBM mainframes and is linked to satellites via several Comten 3809FEPs.

A suitably qualified specialist is required to assist in planning and implementing telecommunication developments relating to voice, data transmission, telegraphy and facsimile.

The successful candidate will have a degree or equivalent in telecommunications or electronics, be aged 25-35 years, have at least 3 years' experience in Project Planning of Systems and Networks and be ready to make a full contribution to this rapidly developing field. Salary and benefits are highly competitive and appropriate to the standing of a major international organisation.

Please telephone for an application form on (01) 834 6677. If you prefer, write with brief details of experience, qualifications and present salary to: Head of Recruitment, Esso Petroleum Company Limited, Esso House, Victoria Street, London SW1E 5JW.

(8533)

COMPUTER SYSTEMS ENGINEER

BBC Engineering Division are looking for an experienced Systems Designer to work in their Studio Capital Projects Department.

The post involves the analysis, design and implementation of software controlled systems for broadcast applications which include the routing of Audio and Video signals, Digital Signal Manipulation and Teletext generation.

The postholder would manage substantial projects which had contributions from engineers within Studio Capital Projects Department, from other specialist departments and manufacturing industry.

Projects may be undertaken for any of the BBC output Directorates and considerable liaison with both manufacturers and broadcasting personnel is required. Candidates must have at least four years' experience in the analysis, design and implementation of mini-computer systems and preferably be a graduate professionally qualified in engineering or computer science. Previous experience of either broadcasting and/or DEC or other mini-computer equipment would be an asset. Candidates must be capable of clear expression both verbally and in writing and must be self motivating. They should preferably be conversant with financial and project planning methods and techniques.

Salary £10,081-£12,334 p.a. according to qualifications and experience. Base will be in London but candidates must be prepared to work away from base at sites throughout the United Kingdom.

Application forms may be obtained from BBC Engineering Recruitment Officer, Room 344, 33 Cavendish Square, London W1A 1AA, quoting reference number 82.E.1089/CW.

For further information, telephone Paul Jarrett, Head of Computer Systems Unit, S.C.P.D. on 01-740-9440.

BBC

(8548)

Communications Technician - up to £11,000

Marks & Spencer need an experienced Communications Technician to work in a small but rapidly expanding team at their Computer Centre in Chiswick.

The network consists of local and remote terminals using British Telecom and private modems linked to our central ICL mainframes, and to mini computers throughout the business.

Your work will involve the maintenance of the existing network, planning of future enhancements and installation of communications equipment and mini computers. You will therefore have a thorough knowledge of communications equipment diagnostics and be keen to train and develop junior staff. This position may appeal to someone with an engineering or electronic background.

The starting salary will range up to £11,000 p.a., depending on experience. In addition, our excellent staff benefits include a non-contributory pension scheme, free life assurance and profit sharing after a qualifying period.

For further details and an application form, please apply to:—
Mrs. E. K. Tyzack, Staff Manager, Marks & Spencer, Guardian House, 272 Gunnersbury Avenue, London W4. Tel: 01-994 3636.

The closing date for applications is 28th February, 1982.

(8536)

Marks & Spencer

COMPUTER MANAGER

Salary £9,150-£10,152 Grade PO1(1-5)

Applications are invited from persons with a sound technical background for this new post in the Treasurer's Department.

The Council is in the process of replacing its ICL 7503 terminal link and replacing it with an ICL ME29/37 machine. Some links with the Berkshire County Council's ICL 2976 main computer will remain, but independent development, together with local terminals and cash receipting terminals, is envisaged.

The successful applicant will preferably have experience of ICL equipment and systems, and possess the necessary managerial ability of commission the new ME29 and develop computing services within the Authority.

Bracknell is a modern town with good amenities, situated in a rural area of East Berkshire, within easy reach of London and the M4.

Housing may be provided in appropriate cases.

Benefits will include flexible working hours, a subsidised staff restaurant, sports and social facilities and the chance to join BUPA at a generous discount.

For further details and an application form, please ring Bracknell 59965 (24 hour answering service) and leave your name, address, job title and where you saw this advertisement. Forms must be returned by 5 March 1982.

Thorntons

(8554)

MARTIN-BAKER (ENGINEERING) LTD

The world's leading manufacturer of pilot ejection seats wishes to appoint

A DATA PROCESSING AND INFORMATION SERVICES MANAGER

to take charge of all aspects of computing (including future planning) within the company and reporting to the Managing Director.

The successful applicant is expected to have a broad experience of computing and a genuine interest in users and their problems.

The individual we are seeking is likely to

- be in mid/late thirties
- already hold a responsible position in data processing
- be familiar with an engineering environment.

Please write enclosing a c.v. to:

The Managing Director
Martin-Baker (Engineering) Ltd
Higher Denham
Middlesex
UB9 5AJ

marking the envelope FI4812. (8543)

Systems Manager

Nigeria

c£20,000 plus generous benefits

A major company, associated with a UK company requires a Systems Manager. Involvement will include the design of systems for stock control and accounting.

Applicants, aged over 30, must have experience as a senior member of a team implementing computerised accounting systems and have five years minimum experience as an Analyst/Programmer. They must have knowledge of on-line direct access systems on a mini computer and have a degree or equivalent. Overseas experience in a developing country would be an advantage.

An excellent salary is offered and the employment package includes a 20% gratuity, car, free furnished accommodation, medical cover, 2 leave passages per annum and (where appropriate) education allowances.

Write with full personal and career details to the address below, quoting ref: M9374/CW on the envelope. Your application will be forwarded directly to the client unopened, unless marked for the attention of our Security Manager with a note of companies to which it should not be sent. Initial interviews will be conducted by the client.

PA Advertising

Norwich Union House, 73/79 King Street, Manchester M2 2JI
Tel: 061-236 4531

PA

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ComputerWeekly

March 4th, 1982

MIDLANDS RECRUITMENT FEATURE

The March 4th issue of Computer Weekly — Britain's highest requested computer journal — will contain a special feature outlining career opportunities in the Midlands.

Computer Weekly is the only computer journal to regularly publish editorial features covering a variety of subjects linked to the job market.

The combination of this special editorial feature together with Computer Weekly's highest penetration of the key job-titles of Analyst, Programmer and Operator, provides a first-class recruitment advertisement platform.

To book your space ring:

VIC SHERET ON 061-872 8861

NORTHERN JOB OPPORTUNITIES – 1

'Skilled systems analysts are strongly in demand'

by Eugene Dempsey

AGAINST the background of increasing indications of a move out of the deep recession, the signs are that Northern computer users are starting to activate new development plans that have stayed on the shelf during the past gloomy months.

This clearly discernible movement, says David Eacott of Computer People North, spells an immediate strong demand for skilled systems analysts – and the forward prospect of a severe shortage of experienced programmers. He says: "The work is there now for all those systems analysts who can fulfil the demand for good skills, and in the main this is especially true of commercial and financial systems.

"As we come out of the recession, it is apparent that more computer users are planning ahead on the basis of more efficient systems which expose the fact that there has been an element of overmanning in the past."

In fact, this trend towards more effective systems which require lower staffing levels is not based on an actual policy of job-cutting. Rather, says Eacott, it is for the opposite reason: "These latest systems are calculated to attain a level of operating efficiency that acknowledges the reduced numbers introduced some time ago." Of course, this means that a more economic degree of staffing more than ever puts the microscope on the genuine capabilities of computer people involved."

In general, the demand in the North for systems analysts tends to overshadow the position of programmers with one outstanding exception: those programmers specialising on such IBM systems as the CICS teleprocessor monitoring and DL31 database systems and normally concentrating on the use of Cobol language are in very short supply.

Looming over this current systems analysts-dominated picture is the major potential problem of a desperate programmer shortage in perhaps 12 to 18 months' time. Once the analysts have completed their development of many of the new systems the requirement for programmers with two to three years' experience will become critical.

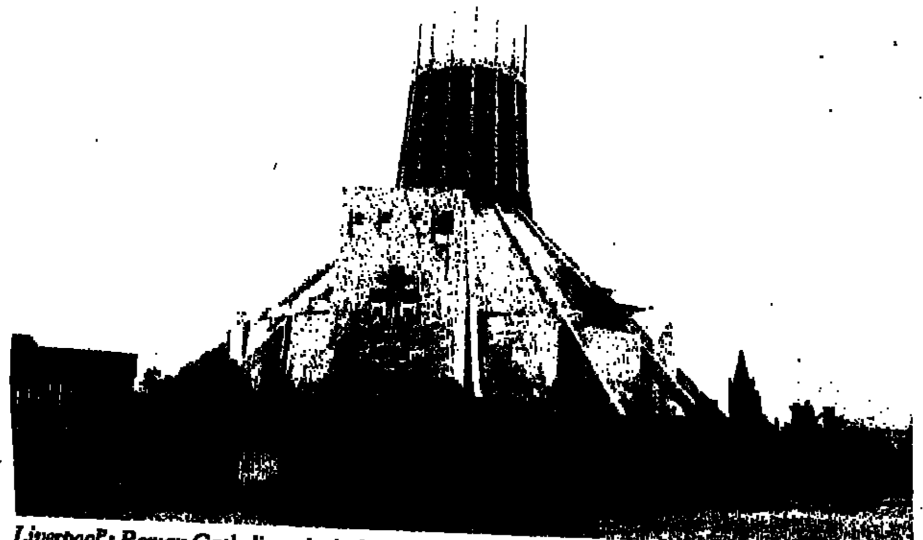
But there is the rub – for that length of experience dates us back to the start of the currently easing recession, when the entry of trainee programmers virtually dried up owing to what was explained then as "economic necessity".

Eacott feels that by the back end of 1983, we could be seeing in the North of England a return to the extremities of the late 1970s, "when programmers with an adequate degree of the right kind of hardware experience could not be had for love or money."

With four years of permanent recruitment experience behind him, David Eacott has detected what to many will be a very surprising development. Salaries for highly qualified computer staff are now higher in many instances in the North-West than in the outskirts of London.

And with the relatively static situation regarding financial benefits, "quality of life" is seen by Computer People North as being more than an esoteric idea.

In addition to a level of cultural activity in Manchester and Liverpool which largely matches what London has to offer, David Eacott also points out that his 50-mile daily drive into the office takes under an hour!



Liverpool's Roman Catholic cathedral. Our culture matches London's, says Computer People North.

IBM Opportunities

ANALYST — Cheshire c. £8500

If you have a minimum of 2 years analysis experience, ideally in manufacturing/engineering application areas, then our 'blue chip' client could be very interested. A first class opportunity to become involved in extensive database and on-line developments, with excellent career prospects. Relocation available to suitable applicants.

PL/1 + CICS — Cheshire c. £7500

For the same client as above, we are seeking 2 experienced PL/1 programmers to work on the development of CICS applications, in a database environment.

Some CICS knowledge is required, but further training will be given, if necessary.

ASSEMBLER — North West to £10,000 +

We are experiencing a strong demand for Assembler applications programmers, trainee systems programmers, and experienced systems programmers in a wide variety of IBM environments. DOS/VS or VSE, MVS, CICS, DL/1, etc are all of interest.

First class opportunities, most including relocation assistance.

For further information, and an early and convenient interview appointment, ring Arnold Sampson (transfer charges, if necessary).

Sampson Staff
COMPUTING & ACCOUNTANCY RECRUITMENT

FREEPOST, Manchester, M1 8DL
Tel: Office—061-832 4184 (24 hours)
Home: Tottington (020488) 2646

PROJECT LEADER

We are an established consultancy/software company based in central Bradford with a number of interesting and challenging projects in hand. As part of our expansion plans, we have just installed an ICL System 25 machine and we now seek a keen but responsible analyst/programmer to join us as a project leader.

The successful applicant will be involved with designing, developing and installing a wide range of commercial systems in conjunction with a small team of programmers. Appropriate experience using Assembler (preferably on ICL System Ten or 25 hardware) is essential.

We can offer friendly and pleasant working conditions, a very competitive salary and job satisfaction galore!

Please apply to: Wyvern Business Systems Ltd., Church Bank House, Church Bank, Bradford, West Yorks BD1 4DY.

(8560)

OPERATORS

Expanding established Computer Bureau serving group of Chartered Accountants requires an additional 2 operators, preferably with experience on ICL ME29 installations. Hertfordshire area.

Reply to Box No. 1191.

DATA PROCESSING MANAGER

Nigeria

£30,000

Our client, a major international company with interests both in the U.K. and abroad, is seeking a Data Processing Manager for Nigeria.

The successful applicant will control the whole computing operation including programming, systems analysis, hardware (currently an ICL 2903/2904) and will be directly responsible for:

1). Maintenance, updating of existing programs and program development.
2). Systems analysis.
3). Training and support of existing and new personnel
4). Existing hardware and future requirements.

This is a senior position and applicants must have proven experience of programming (COBOL/RPG 11) systems analysis for manufacturing processes, and have 3/5 years operational management experience.

This is a staff position offering an excellent salary, free accommodation and the generous fringe benefits associated with a major international company.

Interested applicants should write with their career history to:

Mr. F. Butler, RESOLUX LIMITED
Recruitment Division
Alpha House, Beech Lane, MACCLESFIELD SK10 2PY

NORTHERN JOB OPPORTUNITIES – 2

Programmers

Systems and Commercial

Salaries up to £8,500 p.a.

British Nuclear Fuels Limited is a world leader in the provision of nuclear fuel services. The Company's computer resource has recently been re-organised to provide each of its sites with selected hardware and software to meet their specific technological and administative needs.

We are currently developing systems to run on a range of hardware which includes PRIME, ICL 2904, ICL 2982. These computers are located at our four sites and at our Head Office in Risley, Cheshire. We are developing financial, commercial and personnel systems using on line database techniques, COBOL and FORTRAN.

To aid our development we need to recruit male or female computer professionals as Commercial Programmers. You should have a minimum of 3/4 years DP experience in COBOL and database. A knowledge of on-line techniques would be an advantage.

We also need to recruit experienced Systems Programmers. A minimum of 3 years' in software support on PRIME, DEC or any of the more recent mini-computers is required. A sound knowledge of FORTRAN allied with some exposure to COBOL, Database and communications would also be an advantage.

Additional training will be given where necessary.

We are offering starting salaries up to £8,500 dependant on experience, flexible working hours and excellent career prospects.

These posts are based at our Risley, Cheshire Headquarters.

To apply, please write or telephone for an application form, quoting reference 0475 to: Mrs. Vera Williamson, Staff Office, British Nuclear Fuels Ltd., FREEPOST, Risley, Warrington, Cheshire WA3 1BR. Telephone: Warrington (0925) 35953 Ext. 2429P.

BNFL

Many opportunities for existing Contractors....
Comprehensive FREE booklet for First-Timers....

Contracts NORTH — VNG
Ring Knutsford (0565) 52577 & 54364
Or write – 'FREEPOST', VNG Professional Services Ltd., Knutsford, Cheshire WA16 7BY

Contracts SOUTH — VNG
Ring Gerrards Cross (02813) 86355/6
Or write – 'FREEPOST', VNG Professional Services Ltd., 11 High Street, Chalfont St. Peter, Gerrards Cross, Bucks SL9 8BS

DEPARTMENT OF ARTIFICIAL INTELLIGENCE
UNIVERSITY OF EDINBURGH

RESEARCH ASSOCIATE

The Systems Programming Group has a vacancy for a Research Associate to take part in an investigation, supported by the Science and Engineering Research Council, into the suitability of the ICL PERQ computer for Artificial Intelligence work.

Candidates should have a knowledge of current computing techniques and practical experience with interactive systems. Knowledge of UNIX, C, Pascal and AI languages such as LISP, POP-2 and Prolog would be helpful.

The appointment will be made on the salary range IA, £6,070-£8,925 according to age and experience. The post is funded for a period of three years from the date of appointment.

Further particulars of the post can be obtained from
Administrative Assistant
Department of Artificial Intelligence
University of Edinburgh
Forrest Hill
EDINBURGH EH1 2QL

Applications should be made by 4th March, 1982.

Please quote Reference 5005.

(8430)

COMPUTER OPERATORS

Leeds

The Leeds Permanent Building Society is involved in several exciting and advanced computer developments extending to all areas of its business. The D.P. function is based on two IBM 3031 processors currently running under OS/VS1 and soon to be converted to MVS. A sophisticated teleprocessing network is already installed at Head Office and in more than 300 offices throughout the United Kingdom.

Additional Operators are required to strengthen the operating team. The work is challenging and varied and offers the successful applicants the opportunity to work in an advanced computer installation, utilising the latest hardware and software. Applications are invited from experienced operators with a minimum of two years IBM experience preferably in a VS environment. In addition to a progressive salary, staff benefits include a contributory pension scheme, free life assurance and concessionary mortgage assistance.

If you are interested please write briefly for an application form or telephone:

J. Clark MBIM.
Personnel Manager,
Leeds Permanent Building Society,
Permanent House,
The Headrow, LEEDS LS1 1NS.
Tel: (0532) 38181. Ext: 430

the Leeds PERMANENT BUILDING SOCIETY

Enquiries will be treated in the strictest confidence. Envelopes should be marked 'Staff-Confidential'.

Applications are invited for the following post
TREASURER'S DEPARTMENT

POST NO. 120/91

Computer Programmer/Analyst

GRADE AP5/SO2 SALARY £7371-£8528

This is a new post in the Treasurer's Department. The Council currently has an IBM 377 linked to an IBM 4341 at County Hall, Durham and is purchasing its own IBM system 34 Computer for installation in April 1982.

It is envisaged that the successful applicant will be heavily involved in carrying out development work in preparing programmes for specific applications on the Council's own Computer.

Candidates must have sound experience in Local Authority financial systems and in data processing and 12 months' programming experience in R.P.G.11 or similar language. The successful applicant would also be expected to learn APL and utilise any appropriate software packages.

Canvassing directly or indirectly will disqualify.

The successful applicant will be required to join the appropriate Trade Union in accordance with the Council's Trade Union Membership Agreement.

Application forms are obtainable from the Personnel Section on Telephone Spennymor 816166 (Ext 251). The closing date is February 28, 1982.

A. J. Roberts Chief Executive Officer, Green Lane, Spennymore, Co. Durham, DL16 6JQ.

(8673)

SEDGEFIELD District Council

Victoria Appointments Ltd

WE'VE GOT THE NORTH OF ENGLAND COVERED

MANCHESTER

2 Programmers — **£ competitive**

Our client, a public retail organisation, is now seeking 2 IBM ASSEMBLER programmers to join a major development program that is currently under way.

The installation is based on an IBM 4341 with CICS, TOTAL, and laser printers.

Candidates should have a minimum of 12 months' relevant experience.

Relocation expenses will be met where appropriate

REF: CW1282

LIVERPOOL

SENIOR SYSTEMS ANALYSTS — **c.£10,500**
SYSTEMS ANALYSTS — **c.£9,000**
PROGRAMMERS — **up to £7,500**

This company, a widely diverse and international group with a turnover in excess of £500m, is looking to augment its existing Business Systems Department with a number of Senior Systems Analysts, Systems Analysts and Programmers for their Group U.K. Headquarters based in Liverpool.

There are exciting and wide ranging developments planned for the department, so the candidates required must not only have a sound technical background but be self-motivated to take full advantage of the opportunities being offered.

For the Senior Systems Analyst positions, at least four years' systems analysis experience, gained in a commercial environment on either mainframe or mini's, is necessary. The ability to work alone and to maintain close User contact on a wide variety of projects is essential.

For the Systems Analysts, at least two years' commercial analysis experience in either a mainframe or mini environment is required. A programming background would be desirable. The ability to communicate with Users on a wide variety of projects is required.

Programmers should have a minimum of two years' ICL COBOL experience, a knowledge of Michael Jackson structured programming techniques and FILETAB (FTL6) would be desirable.

The installation is currently an ICL 2960 under DME with MAXIMOP and DATADRIVE, together with a variety of mini's throughout the U.K. For all the positions offered, our client can offer all the normal benefits associated with a large and expanding company.

REF: CW 2282

NORTH MANCHESTER

BELOIT WALMSLEY LTD.

SYSTEMS ANALYSTS
PROGRAMMERS — **Salaries up to £9,000**

Beloit Walmsley Limited, a world leader in paper making machinery with an expanding order book, have vacancies for Systems Analysts and Programmers to join the Data Processing Department.

The Department operates IBM 4341, VM/CMS, DOS/VSE, DL1 and SHADOW II TP for MANUFACTURING/FINANCIAL SYSTEMS and PERSONAL COMPUTING.

Applicants of either sex for the SYSTEMS ANALYST position should have approximately TWO YEARS' proven experience and PROGRAMMERS should be competent in IBM COBOL and/or ASSEMBLER.

DATABASE and TP KNOWLEDGE would be advantageous.

The Company offers competitive salaries and excellent working conditions in keeping with an International Company.

REF: CW3282

CONTRACTORS
NORTH OF ENGLAND

WE ARE LOOKING FOR:

- IBM – COBOL, CICS, DL1 – PROGRAMMERS
- IBM – RPG III, SYSTEM 38 – PROGRAMMERS
- IBM – COBOL – PROGRAMMERS
- ICL – GEORGE III, COBOL – PROGRAMMERS
- ICL – VME/B, IDMSX, TPMS – PROGRAMMERS
- ICL – VME/B, IDMSX, TPMS – ANALYST/PROGRAMMERS

FOR FURTHER INFORMATION AND DETAILS, SEND YOUR C.V. OR TELEPHONE PHIL WALLER OR JANET HIGSON.

REF: CW4282

For an application form in respect of these or the many other permanent and contract vacancies we always have, please contact: Val Halliwell,

Victoria Appointments Limited (Agency)
24 Mosley Street, Manchester M2 3AG
Tel: 061 236 7319 (24 Hr. Answering Service)
Home 061 440 8134

(8514)

061-236 7319
(24hr answering service)

SYSTEM CONTROLLER

c£7200

NEWCASTLE UPON TYNE

This vacancy, which is an 'on shift' position in a large IBM installation, will report directly to the Shift Supervisor.

Responsibilities include:-

- all aspects of computer system operations both hardware and software
- the provision of a system to agreed service levels and availability targets
- ensuring that batch job throughput requirements are satisfied
- the diagnosis and solution of system hardware and software failures
- ensuring that performance monitoring requirements are satisfied

Candidates must have:-

- 2 to 3 years operations experience at a senior level
- IBM experience including MVS/JES 2 (OS/VS! considered)

Previous experience in diagnosing hardware and software faults would be attractive to our client.

In addition to the salary and shift allowance shown the total package will include paid overtime, free BUPA and comprehensive relocation expenses in appropriate cases.

Contact Ivor Norton quoting reference CW/8205 at the address below leaving home and work telephone numbers, which will be used discreetly.

Ivor Norton Management Services Ltd.
RECRUITMENT CONSULTANTS
P.O. Box 63, Copthall Tower House, Harrogate, HG1 1TS.
Telephone Harrogate 66628
24 HOUR ANSWERING SERVICE (0423) 55311

Ferranti Computer Systems Ltd.

Software Technical Authors

SOUTH MANCHESTER **Salaries to £7,500**

The Wythenshawe Division of Ferranti Computer Systems Limited require authors to work in the design department. The job involves working in close co-operation with other members of the programming group to produce high quality user manuals for a range of software products for the Argus 700 series of mini computers.

In addition to the ability to write clear, concise English, applicants should have at least two years experience in a programming environment, ideally as a technical author. Successful candidates are likely to have proven ability to work both on their own and in liaison with others.

The vacancies are located at our Wythenshawe offices in a pleasant part of South Manchester. Starting salary will be up to £7,500, dependent upon qualifications and experience plus a productivity bonus paid quarterly.

For further information please telephone Mr. J. S. Baldwin on 061-499 3355 ext. 3237 or write for an application form to:

Mr. J. S. Baldwin, Programming Manager, Design Department,
Ferranti Computer Systems Limited,
Simonsway, Wythenshawe, Manchester M22 5LA. (8508)

Open to male and female applicants

FERRANTI
Selling technology

SCOTTISH HEALTH SERVICE
COMMON SERVICES AGENCY COMPUTER CENTRE

Intermediate Systems Designers Ref. No. U407
Basic Systems Designer Ref. No. U408

Vacancies exist at the Agency's new computer centre for the above staff to help convert existing systems and design new ones for a recently installed I.C.L. 2988. Data Dictionary and the use of Database software is being planned together with communications and micro systems.

Candidates for the Intermediate posts will be expected to have two or three years' relevant post-graduate experience, or have had equivalent training. Basic Sysaem Designers should be graduates with at least one year's computer experience in programming or systems. In all cases candidates must demonstrate good communications skills both oral and literate.

Salary Scales Ref. No. U407 A & C Scale 3 – £7,884 to £9,277 p.a. and
Ref. No. U408 A & C Scale 4 – £6,884 to £8,147 per annum.

Application form and further details can be obtained from the Appointments Section, Common Services Agency, Trinity Park House, South Trinity Road, Edinburgh EH5 3SE. Complete applications should be returned by 24th February, 1982. Please quote appropriate reference number. (8482)

Project Leaders

North West England
to £13,000+

One of Britain's largest commercial organisations is making further ambitious plans for new systems development and requires additional staff at Project Leader level.

Applications are invited from men and women with at least 7 years DP experience who are already Senior Analysts or who are Project Leaders in a small installation. They would become responsible for multi disciplinary teams including programming, O&M and systems analysis and breadth of experience is therefore desirable.

Successful candidates, who will normally be educated to degree standard or equivalent, will be able to extend their experience in a sophisticated and professional environment. There is excellent scope for further advancement within the organisation. In addition to an attractive basic salary there is a first class benefits package including relocation assistance where appropriate.

Write with full personal and career details to the address below, quoting ref: M9369/CW on the envelope. Your application will be forwarded directly to the client unopened, unless marked for the attention of our Security Manager with a note of companies to which it should not be sent. Initial interviews will be conducted by the client.

PA Advertising
Norwich Union House, 73/79 King Street, Manchester M2 2JL
Tel: 061-236 4531

PA
A member of PA International

ComputerWeekly

March 4th, 1982

MIDLANDS RECRUITMENT FEATURE

The March 4th issue of Computer Weekly – Britain's highest requested computer journal – will contain a special feature outlining career opportunities in the Midlands.

Computer Weekly is the only computer journal to regularly publish editorial features covering a variety of subjects linked to the job market.

The combination of this special editorial feature together with Computer Weekly's highest penetration of the key job-titles of Analyst, Programmer and Operator, provides a first-class recruitment advertisement platform.

To book your space ring:

VIC SHERET
ON
061-872 8861

FOR CLASSIFIED ADVERTISING USE
DIRECT LINE 01-661 0121

The Computer-Age Bank needs you:

Systems Analysts – starting salaries according to age and experience – to £10,700 (with mid-year review). Relocation package available if necessary.

Traditional banks utilised new technology as it became available. National Girobank, founded in the late sixties, was a product of the computer age. Now in the eighties, due to the ever increasing demand for Girobank services more emphasis than ever before is placed on the use of computers in the highly competitive world of high street banking.

A massive development plan which will extend current services into full clearing bank status is now under way at Girobank's Headquarters at Bootle on Merseyside and in line with this next phase systems analysts are required NOW, to be involved in the design of the new TP systems and improved batch processes in this challenging and exciting new venture. Opportunities in this progressive, yet secure environment offer career progression in both data processing and, in the longer term into line management.

2900 mainframes are at the heart of the business systems plans, with extensive use made of a variety of minis and micros, as well as laser printers, OCR readers, COM, proof encoders etc.

Merseyside has many attractive housing areas from Chester on the Wirral to Southport on the coast linked to a comprehensive road and public transport network–if there is need to re-locate a generous package is available. To help you make this career move a comprehensive information pack, detailing the company, job and area has been compiled, and is available to all serious applicants.

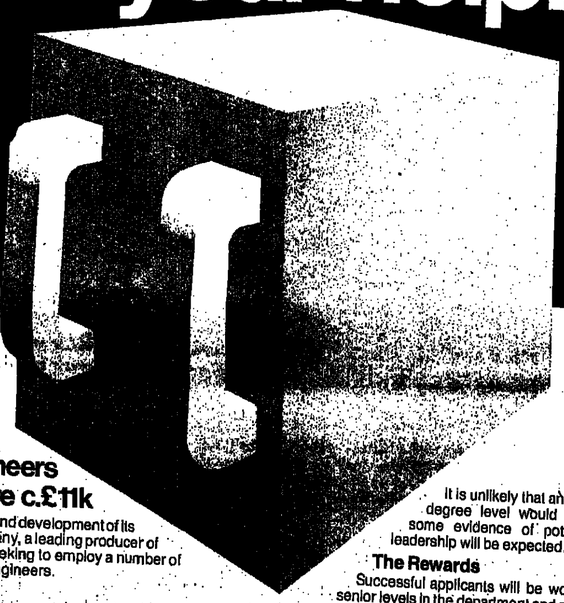
Interested? Then preliminary discussions about your future with National Girobank will be held at our Manchester, Birmingham and London offices.

Contact David Eacott NOW on 061-491 1666 during office hours or Southport 211554, evenings and weekends, and let him help you. Computer People North, Sovereign House, Stockport Rd., Cheadle, Cheshire SK8 2BA (Vigotop)

Help us to use the technology.

NATIONAL Girobank
The king size bank at your post office

This box will fly planes with your help.



Software Engineers Gloucestershire c.£11k

As part of the expansion and development of its software team this company, a leading producer of aviation equipment, is seeking to employ a number of experienced Software Engineers.

The Company

Manufacturers of complex avionic systems and currently supplying equipment to over 450 airlines and airforces in 138 countries, they are now developing the next generation of Flight Management Systems and need to expand their software team.

The Hardware

Based on inter-linked Intel 8086 series micro computers, the system is designed to manage the aircraft resources for optimum economy. Development is being carried out using a PDP 11/44 under RSX 11M using CORAL 66 and ASSEMBLER.

The Location

The Company is based near Cheltenham — attractive and accessible. A spa town and lively centre of music, art and sport, lying at the foot of the Cotswold hills. Nearby are all the major West of England routes (M4, 5, 6 and 50) and the railway connections are excellent.

Computer People Midlands have been appointed to recruit a number of Software Engineers who will be joining the Flight Systems Control department.

The Applicants

Applicants will have worked in a software/hardware development environment and have experience of Real-time and/or microprocessor systems. Knowledge of CORAL 66, MOS 86 or PDP 11 under RSX 11M would be an advantage. Applications experience would be enhanced by evidence of exposure to avionics and/or similar development areas.

It is unlikely that any applicant below degree level would be suitable and some evidence of potential for future leadership will be expected.

The Rewards

Successful applicants will be working at various senior levels in the department and salaries will range up to c. £11K. Benefits normally associated with such an established company will enhance these salaries. The company offers excellent career opportunities and a challenging work environment.

So, if you want to help our clients and yourself, ring Phil Harkcom on 021-643 8501 (office hours) or 021-308 4285 (evenings and weekends). Alternatively, complete and return the Freepost below.

Name_____

Address_____

_____

Tel day_____

ev/wknd_____

Mail (no stamp) to
FREEPOST,
Computer People Midlands,
Alpha Tower,
Birmingham B1 1BR

Computer People Midlands

DUBLIN

SYSTEMS ANALYSTS

CEMENT ROADSTONE HOLDINGS LTD, one of Ireland's leading industrial companies, requires additional staff to implement its development plans. The Computer Division supports the Groupe's Data Processing requirements both at home and overseas. The equipment installed is an IBM 4341 with transmission, operating under VM/DOS/VSE. On-line facilities using CICS are now being extended.

The appointed persons should:

(a) have a proven record of successful development and implementation of computer systems;

(b) be capable of working on his/her own initiative and communicating effectively at all levels of management.

Experience of on-line systems would be an advantage.

Salaries and conditions are competitive and are in line with what one would expect from a leading industrial company.

For further details please contact F. S. O'Sullivan, Computer Services Manager, or Eddie Howard in London.

Cement-Roadstone Holdings Limited
Computer Services Division, Saggart
County Dublin Ireland
Telephone (01) 593444 Telex 5171

DUBLIN

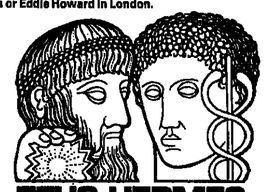
IBM MAINFRAME AND/OR SYSTEM 34

ZEUS HERMES IRELAND LTD. are a highly prestigious software consultancy. The company is involved with the development of sophisticated software products which are installed and marketed throughout the world. In continuing with this success we require additional personnel with IBM mainframe and/or System 34 expertise — two years plus in any of the following would be of great interest.

- ★ INTERACTIVE SYSTEMS
- ★ TELEPROCESSING CICS OR SHADOW
- ★ OS/DOS VSE/VM CMS
- ★ COBOL RPG 11 and other programming aids.

Candidates should be pleasing in manner, ambitious and prepared to travel from time to time.

Excellent opportunities exist for highly motivated individuals seeking greater responsibility, reward and long-term career prospects. An attractive salary and benefits package can be expected. For further details please contact: **Mary Kinsella in Dublin or Eddie Howard in London.**



ZEUS-HERMES IRELAND LTD

3-4 Aston Quay, Dublin 2. Telephone: 01:712764

DUBLIN

SYSTEMS ANALYST

TECHNICAL SUPPORT PROGRAMMER

BECTON, DICKINSON & COMPANY is one of the largest manufacturing companies in the rapidly expanding health care industry. We are situated approximately eight miles south of Dublin City. The company's DP activities are IBM 4341 based, utilising VM/CMS, DOS/VSE, SNA, CICS, VTAM, COBOL, RAMIS and TOTAL.

The Systems Analyst will play a major role in systems development and will be involved with users in designing and implementing a range of new systems.

Two years' working experience of on-line systems design, preferably on IBM equipment is required. Experience in manufacturing Cobol and database systems will be an advantage.

The Technical Support Programmer should have 2/3 years' IBM System Programming experience. The appointed person will play a key role, evaluating software products and ensuring the smooth running of technical support.

An attractive salary and fringe benefit package awaits the successful applicants and relocation assistance will be provided where applicable.

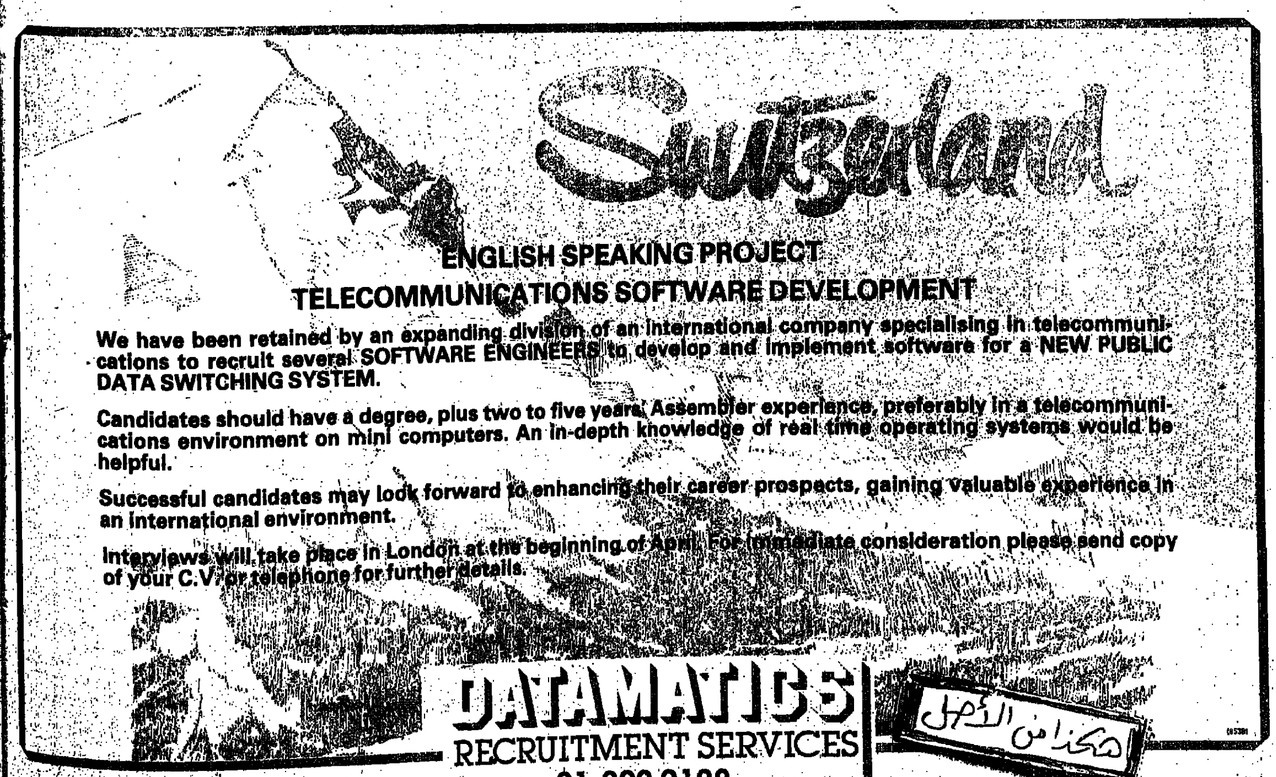
For further information please write in confidence to Brian Clarke, Personnel Manager or contact Eddie Howard in London.

BECTON DICKINSON

POTTERY ROAD, KILLO THE GRANG, DUN LAOGHAIRE, CO DUBLIN (8368)

Edmund Howard & Partners

5 Brighton Road, Surbiton, Surrey, England. Tel: 01-399 9183



Swissotel

ENGLISH SPEAKING PROJECT

TELECOMMUNICATIONS SOFTWARE DEVELOPMENT

We have been retained by an expanding division of an international company specialising in telecommunications to recruit several SOFTWARE ENGINEERS to develop and implement software for a NEW PUBLIC DATA SWITCHING SYSTEM.

Candidates should have a degree, plus two to five years Assembler experience, preferably in a telecommunications environment on mini computers. An in-depth knowledge of real time operating systems would be helpful.

Successful candidates may look forward to enhancing their career prospects, gaining valuable experience in an international environment.

Interviews will take place in London at the beginning of April. For immediate consideration please send copy of your C.V. or telephone for further details.

DATAMATICS
RECRUITMENT SERVICES
01-399 9183
Datamatics, Freepost, Surbiton, Surrey KT6 5BR

هكذا من الأصل

Attention to Detail

System Test Engineers

Amdahl is one of the world's most successful manufacturers of large scale compatible mainframes. Our success springs from recognition that progress in this field means concentrating on the essentials. That means attention to detail in manufacturing, and testing to the highest standards of quality and reliability.

To maintain this standard we are looking for a small number of Highly Competent — **SYSTEM TEST ENGINEERS**, who will be responsible for final test, debug and verification of Amdahl computer systems. You will work in a professional team where prospects of advancement are excellent. We place a high emphasis on training, both in Ireland and in our headquarters in Sunnyvale, California.

To be considered for these positions you should have 3-5 years experience in final test or field support on medium to large scale computer systems. Experience of IBM 360/370 or compatible systems would be advantageous. An appropriate degree or equivalent technical qualification is desirable.

For Engineers, moving to Ireland represents several major benefits. It is one of the world's fastest growing computer industry bases. There are no local government rates and housing is available considerably cheaper than most parts of the U.K.

Amdahl is situated in an ultra-modern complex in Swords on the outskirts of Dublin. The Irish operation is an assembly and test facility exporting mainly to Europe. Our current workforce is just over 200 and this will continue to increase over the coming year with the introduction of our new computer, the Amdahl 580.

The salary and benefits package offered for these vacancies is very attractive and will include generous relocation where appropriate.

amdahl

If you would welcome the challenge of a new life and career then this is a superb opportunity to join a high technology leader at the forefront of an expanding industry.

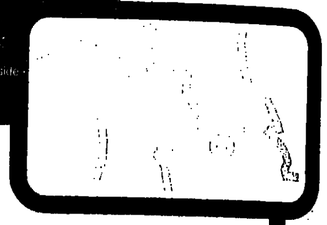
Name: Address: Home Tel: Work Tel: Ext: TK160

D. P. RECRUITMENT LTD
FREEPOST, LONDON W5 2BR
TEL: 01-567 3601 (24 HOUR ANSAPHONE).

(8497)

The North

Manchester · N. Derbyshire · Cheshire · N. Wales · N. Staffs · Merseyside · Lancs · Yorks · Humberside · Durham & Tyneside · Border Counties · Scotland · Ireland



Cobol Programmers Manchester to £7k
This is an opportunity for you to join this major high technology group's systems development team. Utilising ICL 2956 and 2966 under DME you will be involved in a wide range of applications. There is already wide use of TP facilities and database is under evaluation. For further details please ring David Facett. Ref: 146.

Systems Analysts S. Manchester up to £10k
Systems Analysts with a minimum of two years' experience are required by a number of clients. More important than particular hardware experience is a proven record of working on manufacturing systems. In return you will receive an excellent remuneration package befitting these large international companies. Please contact Graham Pepper. Ref: 212.

Senior Customer Support Analyst North West £9.5k
Our client requires two additional senior analysts to be involved in the development of new TP and database systems. Successful applicants will work within a management services unit providing a service to group companies and must possess proven project control experience. For more details contact David Escott. Ref: 418.

CONTRACT REQUIREMENTS

ANALYST — DL1 or IMS experience
Analyst — CICS + Database experience
Analyst — Strong Real-time experience
Analysts — HP3000 experience
Analyst — Equipment maintenance experience
Analyst — Financial systems/cost accounting
Analyst — IBM IDMS Database Design (Physical)
Analysts — ICL IDMS experience
Programmers — IBM Cobol CICS DL1
Programmers — ICL Cobol IDMS
Programmer — ICL 7500 TPL/TPLS
Programmer — ICL VMEB Technical support specialist
Programmers — ICL 2900 VMEB SCL
Analyst/Programmers — ICL 1900 GII Cobol Plan
Programmer — CMC Sovereign + Cobol

(8518)

061-491 1666

Computer People North

Mail (no stamp) FREEPOST, Computer People North, Sovereign House, Stockport Road, Cheadle, Cheshire SK8 2YD

I am interested in ☐ appointments or ☐ contracts in the North

Name _____

Address _____

Tel day _____ Tel evening _____

هكذا من الأصل

Systems Analysts

Saudi Arabia to £22,000 after tax

Aramco, the world's largest petroleum and NGL producer, continues to offer the employment benefits and opportunities that are allied to their phenomenal growth rate and performance. During 1982, with IBM 3081's being installed, development workload will mean that additional analysts are required.

We wish to hear from candidates possessing a degree/HNC or equivalent qualifications in Computer Science, Business Studies or a related discipline, who can demonstrate at least six years' systems experience in an IBM environment. We are particularly interested in receiving details if you are familiar with Mark IV or a similar language and if you can offer effective user communication ability.

Analysts will work in areas including Inventory Control, Sales and Management Reporting Systems. Also you will prepare user manuals and systems presentations, providing training and conducting special studies as required.

Aramco offer indefinite term employment (initially single status), free medical aid cover, free local transport, heavily subsidised and air conditioned accommodation, recreational facilities and regular repatriation flights.

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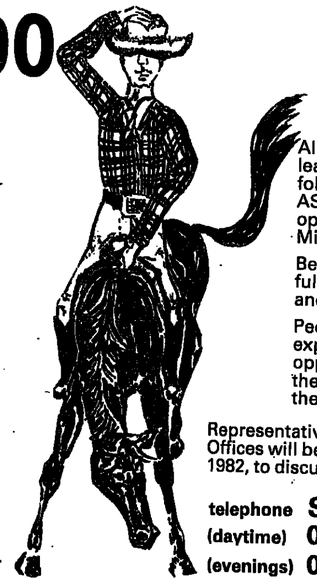

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(8439)

SALES BIT

How to become a head-hunter—Pa

Hit-men of the industry

MOST readers of this column know I am involved in recruitment and training, and conversely, the people I meet during the course of my business activity are aware of my literary efforts. This leads to interesting conversations about the many facets of selling, but invariably the topic gets around to the recruitment process and how we go about finding people for jobs and jobs for people.

It is, in my opinion, a job that is suited only to individuals who truly care about the welfare of others, and who have the direct occupational experience and knowledge of the prevailing circumstances of a given industry to give people the necessary guidance to make a sensible career move.

The effective recruiter is able to transcend the myopic subjectivity of a candidate's present employment and give him or her a view of the available world.

He identifies the candidate's strengths and weaknesses and attempts to marry them with a job which will exploit the former and compensate for the latter. The social and ethical considerations are most profound for the dedicated recruitment consultant, and that is why I react negatively when people, usually quite innocently, call me a "head-hunter".

This is a term that has crept stealthily into recruitment like an insidious pollutant, to stain the character of all its participants. There is an enormous difference between those who can truly be called recruitment consultants and the predators of the industry who may operate in executive splendour within a large international mafia.

Yesterday someone paid me what he considered a compliment. His words were to the effect: "You must be one of the best known head-hunters in the computer business." Ego trip? No thank you!

I realised the man was being nice and I didn't want to repay his generosity with an apparently jaundiced reprimand, but I did steer the conversation around to discussing what is loosely called "head-hunting" to make it clear that it was a process unsuited to his requirements in particular, a facility to be avoided in general and certainly not a label I wanted sticking on my organisation.

"Head-hunting" is, on the face of it, attractive to the customer because he simply specifies the kind of person he requires, and without further effort, he is suddenly confronted by individuals who fit the description. Magic!

He doesn't consider [illegible] perhaps even care [illegible] they have come from or [illegible] means by which they [illegible] delivered. They are [illegible] that's the important [illegible] and his manpower [illegible] is about to be solved.

The vacuum it creates [illegible] the anguish it causes [illegible] someone else's problem. Meanwhile, the "head-hunter" is smiling on [illegible] side-lines counting his money, knowing that [illegible] day's client may be tomorrow's victim. We call them "hit-men" for they are taking more.

There are two kinds of operators in the recruitment business whom I find completely untenable. First, the dedicated "hit-man" and second, but more particularly, what we call "roll-over merchants". The latter are those who have established a file of candidates with whom they have dealt in the past.

Some they have put in their present or previous jobs and others they did not succeed in placing, but know them to be suitable material. Their business is almost entirely devoted to continually re-approaching these same people, telling them, "It's about time you changed your job."

The length of service in the present occupation might be two years or could be less, depending on how desperate the "roll-over" recruiter happens to be at a given time. The fact that they may have taken a fee for putting the candidate into his present job is of little or no consequence.

I suppose one of the reasons why "head-hunting" is so unattractive to me, apart from ethical considerations, is that it is too easy. At the executive level it becomes easier the higher you go because of the pyramid structure of the usual management organisation which makes individuals more exposed, the more senior they become.

Consider the relative problems of two assignments: (i) Find me a managing director with direct experience of running a mainframe manufacturer. (ii) Find me a computer salesman.

In the first case, the experienced "head-hunter" will have written down the names of his targets before the caller has put down his telephone. In the latter, he is unlikely to have any names which immediately spring to mind and may have some difficulty in deciding where to start.

However, this is more a problem of choice than one of availability.

More next week!

Alan William

PUZZLE ANSWER

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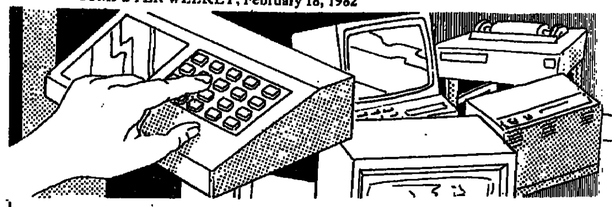

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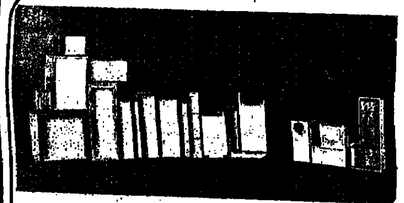

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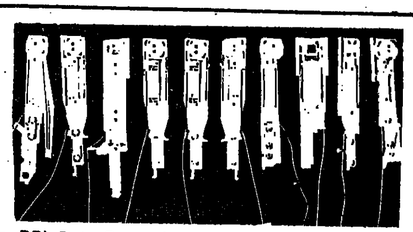

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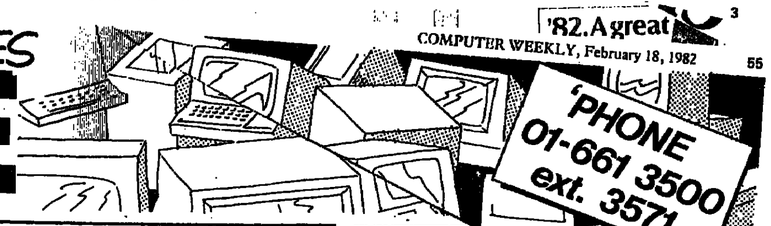

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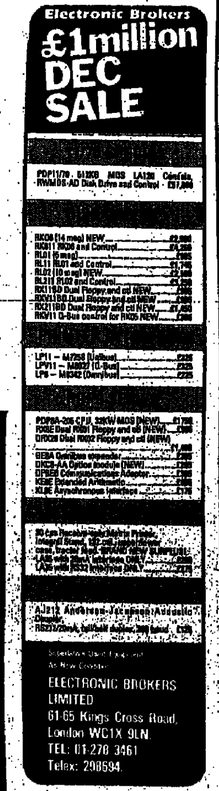

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